INFECTIOUS AGENTS:

1. Which of the following is the most common cause of fever of unknown origin?
   - A. Lymphoma
   - B. Giant cell arteritis
   - C. Infective endocarditis
   - D. Tuberculosis
   - E. Adult onset Still disease

Ans: Tuberculosis

Explanation: Infections are the most common cause of fever of unknown origin in developing countries and tuberculosis is the most common cause of infection associated FUO. Giant cell arteritis is the most common non infectious cause of FUO and most common cause overall in developed countries.

2. Which of the following is not a criteria for systemic inflammatory response syndrome?
   - A. Fever > 38.0 C°
   - B. Heart rate > 80
   - C. Respiratory rate > 20
   - D. WBC > 12000
   - E. WBC < 4000

Adu

Ans: Heart rate > 80

Explanation: SIRS is defined as fulfilling at least two of the following four criteria:

- Fever >38.0°C or hypothermia <36.0°C
- Tachycardia >90 beats/minute
- Tachypnea >20 breaths/minute
- Leucocytosis >12*109/l or leucopoenia <4*109/l.

3. A 57 year old male presented with fever and cough with progressive altered sensorium for 2 days. O/E, blood pressure of patient is 70/50. You have resuscitated the patient with 3 L of saline and broad spectrum antibiotics but after 2 hours his blood pressure is still 80/60mmhg. Which of the following is the best next management step?
   - A. IV hydroxyethyl starch

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   - A. IV hydroxyethyl starch

B. IV hydrocortisone 200 mg

C. Noradrenaline infusion

D. Dopamine infusion

E. Dobutamine infusion

Fluid
Antibiotics
Cortisol

Ans: Noradrenaline infusion ✓

Explanation: This patient is most probably having sepsis due to pneumonia. The best initial treatment is IV fluids with broad spectrum antibiotics. If sepsis is accompanied by hypotension which does not get better with adequate fluid resuscitation, the patient is said to have septic shock for which vasopressor therapy should be given. IV infusion of noradrenaline with titration to keep MAP more than 65 mmhg and serum lactate less than 2 is the best treatment for septic shock.

4. A patient was investigated with blood culture as a work up for mitral valve vegetations and fever. Blood culture was positive for streptococcus gallolyticus. Patient managed with benzyl penicillin and gentamicin for 2 week with good response. What additional test should be done in this patient?

   A. Cystoscopy

   B. Upper GI endoscopy

   C. Colonoscopy ✓

   D. CT of thorax

   E. CT KUB

problem

Ans: Colonoscopy

Explanation: Endocarditis caused by streptococcus bovis subtype gallolyticus is associated with colonic carcinoma and it's isolation in the blood is an indication for colonoscopy after treatment with antibiotics.

5. A patient with history of AKI after contrast agent was started on hemodialysis through an internal jugular double lumen catheter. Patient has developed fever after 3 days and there is redness and purulent discharge at the site of insertion of catheter. Which of the following organism would be cultured in blood most commonly?

   A. S. Aureus

   B. S. Epidermidis ✓

   C. Klebsiella

   D. Acinetobacter

E. E. coli

Ans: S. Epidermidis

Explanation: This patient has developed catheter related blood stream infection. The most common organism causing this is s.epidermidis followed by S. Aureus.

6. Which of the following infection is classically associated with Faget sign?
   A. Dengue fever
   B. Malaria
   C. Influenza
   D. [✓ Typhoid]
   E. Pneumococcus

Ans: Typhoid

Explanation: For every 1 C° (1.8F) increase in core temperature, the heart rate typically rises by 15-20 beats/min. Faget sign or relative bradycardia is present when patients have a lower heart rate than might be expected for a given core body temperature. Although it is also present in many other causes of fever sometimes like malaria, dengue fever, brucellosis, legionella and mycoplasma, classically it is associated with typhoid fever.

7. Which of the following is the most common cause of sepsis in asplenic patients?
   A. Streptococcus pneumoniae
   B. Heamophilus influenza
   C. Meningococcus
   D. Malaria
   E. E.Coli

Ans: Streptococcus pneumoniae

Explanation: Patients without splenic function are at risk for overwhelming bacterial sepsis. Asplenic adult patients succumb to sepsis at 58 time the rate of general population. In asplenia, encapsulated bacteria cause the majority of infections. Adults, who are more likely to have antibody to these organisms, are at low risk than children. S. Pneumoniae is the most common isolate causing 50-70 percent of cases. The risk of H. Influenzae and meningococcus is also increased.

8. A 35 year old male with a prosthetic heart valve needs dental procedure which will involve manipulation of gingiva. Patient is penicillin allergic and has history of immediate hypersensitivity to penicillin. Which of the following is the best antibiotic for prophylaxis for infective endocarditis in this patient?

   A. Ampicillin 2g IV
   B. Cephalexin 2g PO
   C. Clindamycin 600 mg PO ✓
   D. Ceftriaxone IV
   E. Vancomycin IV

M Isonuoli

Ans: Clindamycin 600 mg PO ✓

Explanation: For patients with history of immediate hypersensitivity to penicillin, all penicillin and cephalosporins should be avoided. The best drug for penicillin allergic patients is clindamycin 600 mg PO or azithromycin 500 mg or clarithromycin 500 mg PO. For non penicillin allergic, amoxicillin 2g PO 1 hour before procedure is drug of choice.

9. A diabetic patient has developed necrotizing fasciitis of the lower abdominal wall. Surgical consultation regarding debridement is done. Which of the following treatment should also be given to this patient?

   A. Cloxacillin + erythromycin
   B. Vancomycin
   C. Benzyl penicillin + metronidazole
   D. Benzyl penicillin + clindamycin ✓
   E. Moxifloxacin

Cipro

Ans: Benzyl penicillin+ clindamycin

Explanation: For necrotizing fasciitis, immediate surgical consultation should be done, so that necrotic tissue should be surgically removed. Group A streptococcus is the most common cause of necrotizing fasciitis and treatment of choice is benzyl penicillin 4 millions units 4 hrly plus clindamycin 600-900 mg IV 6-8hrly.

10. A 23 year old male presented in emergency after a dog bite. You have managed the patient with local toilet of wound and active and passive immunization for rabies. Which antibiotic should be given as prophylaxis to prevent the bacterial infection in this patient?

DCM

A. Erythromycin

B. Ampicillin

C. Amoxicillin

D. Co-amoxiclav ✓

E. Ampicillin/sulbactum

Ans: Co-amoxiclav

Explanation: For animal bite, co-amoxiclav 1g BD should be given as prophylaxis or for early infection. Ampicillin/sulbactum 1.5-3g IV 6 hrly is used in established infection after animal bite.

11. A 57 year old male presented with right thigh pain and fever for 2 weeks. He has history of RTA 2 months back with fracture of femur which was managed with open surgery. Osteomyelitis due to staphylococcus is suspected as MRI showed bone marrow edema. Patient is treated with oxacillin 2 g 6 hrly for 2 weeks with good response. What should be the next best management?

   A. Continue oxacillin for 6 weeks

   Fluro

   B. Co-amoxiclav for 6 weeks

   OXui

   C. Levofloxacin for 6 weeks

   D. Rifampicin for 6 weeks

   OLR.

   E. Levofloxacin+ Rifampicin for 6 weeks

Ans: Levofloxacin + Rifampicin for 6 weeks

Explanation: The treatment for MSSA associated osteomyelitis is oxacillin 2 g 6 hrly followed by rifampicin 300-450 mg PO 12 hrly+ Levofloxacin 750 mg once daily for 6 weeks.

12. A 23 year old medical student presented in emergency with multiple episodes of vomiting and loose stools for 2 hours. He has taken reheated fried rice 4 hours ago. Which of the following is responsible for this presentation?

   A. Staphylococcus aureus

   B. Bacillus cereus ✓

   C. Clostridium perfringens

   D. Enterotoxigenic E. Coli

   E. Vibrio cholerae

Ans: Bacillus cereus

Explanation:

- Vomiting+ diarrhea within 1-6 hours of taking fried rice=> **bacillus cereus**
- Diarrhea+ cramps with no vomiting after 8-16 hours of meat, vegetables, dried beans and cereals intake=> **bacillus cereus**
- Predominant vomiting with diarrhea within 6 hours of taking salad, mayonnaise and poultry=> **staphylococcus aureus**
- Predominant diarrhea with abdominal cramps after 8 hours and before 16 hours of taking beef, poultry, legumes and gravies=> **clostridium perfringens.**

13. A 61 year old male presented with fever and headache associated with photophobia for 4 days. LP was done which showed the picture of pyogenic meningitis. Which of the following is the best empirical regimen of antibiotics for this patient?

    A. Ceftriaxone+ ampicillin
    B. Ceftriaxone+ vancomycin
    C. Ceftriaxone
    D. Vancomycin+ Benzyl penicillin
    E. Ceftriaxone+vancomycin+ ampicillin ✓

[illegible]
streptomycin

Ans: Ceftriaxone + vancomycin + ampicillin

Explanation: The most common cause of meningitis in adult age group is pneumococcus and meningococcus. The empirical regimen of choice in this age group is ceftriaxone 2 g IV BD, which will cover almost 100% of meningococcus and 80-85% of pneumococcus, and Vancomycin 15mg/kg BD to cover the additional 15% strains of pneumococcus which are resistant to ceftriaxone. In patients, who are more than age 50 or less than 3 months of age, listeria monocytogenes is also a cause of meningitis and this bacteria is not covered by ceftriaxone and vancomycin. To cover this, ampicillin 2g IV Q4-6 hrly should be added in this age group.

Dexamethasone should also be added before the start of antibiotics. It is mostly used for meningitis caused by pneumococcus.

4 days.
1-2 weeks → T.B

14. A 25 year old female presented with complaints of a malodorous vaginal discharge which is greenish in color and is frothy. She also complains that her vulva and vagina are itchy and sore. What is the most likely diagnosis?

    A. Chlamydia trachomatous
    B. Bacterial vaginosis
    C. Trichomoniasis ✓
    D. Gonorrhea
    E. Candidiasis

Ans: Trichomoniasis

Explanation: Malodorous greenish discharge with itching and soreness in young female should raise the suspicion of trichomoniasis. Bacterial vaginosis causes profuse whitish discharge with fishy smell with no or minimal itching. Candidiasis can cause itching but discharge is whitish and curd like. Treatment of choice for trichomoniasis is metronidazole.

15. A 72 year old female with history of polymyalgia rheumatica on long term steroids treatment has developed vesicles and pustules for 1 day associated with fever. Her grandson has chicken pox 1 week back. What treatment should be given?

    A. IV immunoglobulin
    B. Co-amoxiclav oral
    C. [✓ Acyclovir oral]
    D. Paracetamol oral
    E. Varicella vaccine

+ + X antibiotics

urology

Ans: Acyclovir oral

Explanation: IVIG is used for prophylaxis after an exposure to patient with chicken pox. There is no use of vaccination and IVIG after disease has occurred. The best treatment now is oral acyclovir with supportive therapy.

16. A 41 year old farmer presented with history of low grade fever associated with night sweats, myalgia and low back pain for 2 months. Examination showed spinal tenderness with lymphadenopathy. Labs showed neutropenia. A rose Bengal test is positive. What is the most likely diagnosis?

    A. Potts disease

B. Infective endocarditis

[✓ C. Brucellosis]

D. Sarcoidosis

E. Staphylococcus discitis

Ans: Brucellosis

Explanation: The two main differential in this patient are Potts disease and brucellosis as patient is a farmer. Neutropenia and positive Bengal test is suggestive of brucellosis as the most probable diagnosis. Bengal test is used for the screening of brucellosis and should be confirmed further by antibody testing. Treatment for brucellosis is rifampicin plus doxycycline with addition of gentamicin for neurobrucellosis and bone disease.

17. A 25 year old male presented in emergency with complaints of high grade fever associated with headache, retro orbital pain and back pain for 4 days. Labs showed WBC of 2700 and platelets 90,000. A confluent rash appeared after 2 days of admission and patient starts bleeding from gums. What is the most probable diagnosis?

A. Typhoid fever

B. Malaria

C. Leptospirosis

[✓ D. Dengue fever]

E. Congo hemorrhagic fever

Ans: Dengue fever

Explanation: High grade fever, myalgia, headache, retro orbital pain and back pain with bicytopenia and rash and history of bleeding gums are suggestive of dengue fever as the cause in this patient.

18. Which of the following is the most common neurological complication of measles?

A. Mononeuritis multiplex

B. Subacute sclerosing panencephalitis

[✓ C. Acute demyelinating encephalitis]

D. Inclusion body encephalitis

E. Aseptic meningitis

Ans: Acute demyelinating encephalitis

Explanation: The most common complication overall is pneumonia. The most common neurological complication of measles is acute demyelinating encephalitis which presents with seizures, fever, loss of consciousness and irritability. Inclusion body encephalitis occurs in those who are immunocompromised. SSPE is a very rare complication which occurs after 5 years of measles infection.

19. A 32 year old newly married male went to Egypt for honeymoon. Three days after returning from the trip, he presented with dysuria, hematuria and fever. He also had a skin rash. CBC showed Increased eosinophil count. What is the most likely causative agent for this presentation?
    - A. Schistosoma Japonicum
    - B. Schistosoma mansoni
    - C. Schistosoma haematobium
    - D. Schistosoma mekongi
    - E. Schistosoma intercalatum

Ans: Schistosoma haematobium

Explanation: History of visit to Egypt with hematuria, skin rash and eosinophilia is urinary schistosomiasis caused by schistosoma haematobium. Diagnosis is by identification of typical eggs in urine, urine sample should be taken between 10 am and 2 pm. Praziquantel is the treatment of choice.

20. A 24 year old female presented in emergency with high grade fever associated with an erythrodermic rash, profuse diarrhea and shortness of breath. Blood pressure is 80/45 on presentation. Labs showed acute kidney injury with high ALT and AST. Patient also has low oxygen saturation. A retained tampon in found on examination. After 1 week of treatment, there was desquamation on palms and soles. What may be the most common likely organism causing this presentation?
    - A. Staphylococcus epidermidis
    - B. Gonococcus
    - C. Streptococcus pyogenes
    - D. Streptococcus pneumoniae
    - E. Leptospira

Ans: Streptococcus pyogenes

Explanation: The presentation is highly suggestive of toxic shock syndrome. It is commonly caused by staphylococcus aureus or streptococcus pyogenes. There is production of exotoxins which is thought to act as super antigens, leading to massive activation of T cells and cytokine production. Five categories of clinical features are needed for the diagnosis:

- Fever
- Rash (diffuse macular erythroderma)
- Desquamation (1-2 wk after illness onset, involving palms and soles)
- Hypotension (systolic blood pressure < 90 mm Hg, orthostatic drop in diastolic blood pressure < 15 mm Hg, orthostatic syncope, and dizziness)
- Evidence of multisystem involvement in 3 or more of the following systems:
  - Gastrointestinal – Vomiting or diarrhea at the onset of illness
  - Muscular – Severe myalgia or creatine kinase (CK) elevation (>2 times normal upper limit)
  - Mucous membrane – Vaginal, oropharyngeal, or conjunctival erythema
  - Renal – BUN or serum creatinine greater than 2 times the upper limit of normal
  - Hepatic – Bilirubin or transaminases greater than 2 times the upper limit of normal
  - Hematological – Platelets less than 100,000
  - Central nervous system – Disorientation or alteration in consciousness without focal signs

Clindamycin and penicillin is the antibiotics of choice for toxic shock syndrome. IVIG should also be considered along with hyperbaric oxygen therapy.

21. A 19 year old male presented with sore throat, difficulty in swallowing and fever for 1 week. Examination showed whitish plaques over his pharynx and enlarged cervical lymph nodes giving him a bull neck appearance. What treatment should be initiated immediately?

A. Benzyl penicillin
B. Anti-toxin ✓
C. Hydrocortisone
D. Urgent tracheostomy
E. IV ceftriaxone

Ans: Anti-toxin

Explanation: The clinical features are highly suggestive of diphtheria and any patients who is a suspect or confirmed case should receive diphtheria anti toxin(DAT). A suspect case is defined as an upper respiratory tract illness with an adherent membrane of the tonsil, pharynx, larynx or nose that is not laboratory confirmed. The dose is 20,000-40,000 IU for pharyngeal or laryngeal disease of 2 days duration, 40,000-60,000 for nasopharyngeal disease, 80-000-100,000 IU for extensive disease of 3 or more days duration or for any patient with diffuse swelling of neck. One ampoule contains 10,000 IU. Antibiotics should also be started. Penicillin and erythromycin are antibiotics of choice for 14 days.

22. A 23 year old medical student presented in emergency with profuse watery diarrhea associated with nausea for 24 hours. He has returned from a trip to Northern areas 2 days back. The diarrhea has a fishy odour and has an appearance of rice water. Examination showed dry mucous membranes with postural hypotension. What is the most likely diagnosis?
    A. Amebic dysentery
    B. Salmonella enterocolitis
    C. Cholera
    D. E. Coli diarrhea
    E. Shigella dysentery

Ans: Cholera

Explanation: The fishy odour and rice water appearance with profuse watery diarrhea is suggestive of cholera. It can leads to severe dehydration. IV hydration with ORS is mainstay of treatment. Doxycycline is the antibiotic of choice.

23. A 59 year-old man with a long history of poorly controlled diabetes presents to his physician complaining of pain and drainage in his left ear. His vital signs are within normal limits. The pinna of his left ear is tender. The external meatus is swollen and covered with purulent drainage and granulation tissues. What is the most likely organism responsible for his condition?
    A. Candida albicans
    B. Heamophilus influenzae
    C. Pseudomonas aeruginosa
    D. Moraxella catarrhalis
    E. Streptococcus pneumoniae

Ans: Pseudomonas aeruginosa

Explanation: History and examination suggests the diagnosis of malignant otitis externa which is a disease specific infection related to diabetes. Malignant otitis externa is a life-threatening infection that mainly affects the external auditory canal and skull base, and the infection can also invade the stylomastoid and jugular foramina. Infection and inflammation can take different anatomical routes through the osteocartilaginous junction or osseous canal toward the mastoid process posteriorly, or toward the temporomandibular joint, parotid gland and cervicofacial spaces anteriorly, or medially into skull base.

- The most common causative organism is pseudomonas aeruginosa.
- Fungi can also cause the disease by 5% to 20% of the general population, making it the second most common causative organism, with aspergillus fumigatus being the most common cause of fungal etiology.
- Diabetes is the most common risk factor. This is due to small-vessel vasculopathy and immune dysfunction associated with diabetes. Moreover, patients with diabetes have impaired response to antimicrobial agents, as their ear wax has a higher pH than normal people as well as lower lysozyme concentration.
- Pain, which is often out of proportion to physical examination, edema, exudates and granulations, which can be seen in the external auditory canal, are common clinical findings.
- Technetium Tc 99 methylene diphosphate bone scanning along with MRI is diagnostic.
- Treatment of choice is ciprofloxacin.
- The duration of treatment depends on the response to therapy, which is evaluated using a gallium citrate Ga 67 scan every 4 to 6 weeks during treatment.
- The treatment should be stopped one week after a normal gallium citrate Ga 67 scan.

24. A 29 year old male presented with progressive confusion, headache and fever for 3 days and generalized tonic clonic fits for 1 hour. A CT brain showed hypodensity in both temporal lobes. CSF showed elevated WBCs with 80% lymphocytes and a mildly elevated proteins. Which treatment should be started in this patient?

    A. Vancomycin+ ceftriaxone
    B. IV phenytoin+ IV fluids
    C. IV acyclovir+ IV fluids
    D. IV Acyclovir+ IV ceftriaxone
    E. IV Acyclovir+ IV dexamethasone

Ans: IV acyclovir+ IV fluids

Explanation: The history, CSF findings and CT findings suggest herpes simplex associated acute encephalitis. It presents with headache, malaise, confusion, altered sensorium and seizures. It typically involves temporal lobes. Diagnosis is confirmed by HSV PCR in CSF which has a sensitivity of 95%. Treatment is IV acyclovir and IV fluids to prevent the renal injury by acyclovir.

25. A 22 year old male presented with a maculopapular rash for 1 day. He has taken amoxicillin for a sore throat and fever which is present for 3 days. Examination showed maculopapular rash and cervical lymphadenopathy and congested throat. What is the most likely diagnosis?
    - A. Streptococcal throat infection
    - B. Diphtheria
    - C. Infectious mononucleosis ✓
    - D. HIV Seroconversion
    - E. CMV infection

Ans: Infectious mononucleosis

Explanation: Development of rash after amoxicillin for sore throat in a young patient is typical of Infectious mononucleosis.

26. A 34 year old male presented with diarrhea for 3 days which was watery initially and contains blood and mucus since the last night. He also complains of abdominal cramps and fever. Stool examination showed pus cells. What is the most likely causative agent?
    - A. Vibrio cholerae
    - B. E.Coli
    - C. Campylobacter
    - D. Shigella
    - E. Giardia

24-18

48-72

1-6 hour Staph BC

12-48 E: S

48-72 Shigella.

7-

7 6 days dysent.

Ans: Shigella

Explanation: The presence of mucus, blood, abdominal pain and pus in stools in typical of shigella which is the most common cause of dysentery. E.coli and cholera cause watery diarrhea.

27. A 42 year old carpenter presented in emergency with recurrent spasms of muscles of facial expressions, neck stiffness and difficulty in opening the mouth. The spasms are worse in well lighted room. Patient has a history of rusty nail penetration 2 weeks back. Which of the following is the best initial management for this patient?
    - A. IV metronidazole

B. IV penicillin

C. Tetanus immunoglobulin

D. IV diazepam

E. IV magnesium sulfate

5

Ans: Tetanus immunoglobulin

Explanation: The immediate treatment of tetanus should be done with human tetanus immunoglobulin 500 IU IM stat + tetanus toxoid vaccine as tetanus disease does not result in immunity.

All of the other options are also used in the management of tetanus, but the immediate and most effective and most important step in management is tetanus immunoglobulin.

- Antibiotic of choice in tetanus=> ***metronidazole***, penicillin alternative.
- IV diazepam for control of muscle spasm.
- IV magnesium sulfate for autonomic dysfunction plus spasms.

28. A 36 year old male presented with a lacerated wound on the left thigh after a bike accident. Wound is dirty and contaminated with dirt and soil. Patient has no history of previous vaccination for tetanus. What additional measures should be taken in addition to wound toilet in this patient?

    A. A 3 dose series of tetanus toxoid

    B. Tetanus immunoglobulin IM + 1 dose of tetanus toxoid

    C. Tetanus immunoglobulin+ 3 dose series of tetanus toxoid

    D. 1 dose of tetanus toxoid

    E. Tetanus immunoglobulin 250 IU IM stat

Ans: Tetanus immunoglobulin + 3 dose series of tetanus toxoid

Explanation: Guide to tetanus prophylaxis in wound management:

- If the wound is minor and clean, and patient has history of >= 3 dose series of TT injection and the last dose is taken less than 5 years=> patient is protected and not require any further dose
- If clean and taken 3 or more TT injection and last dose has taken more than 5 years back=> 1 booster dose of tetanus toxoid
- If clean wound and no history of vaccination=> 3 dose series of TT

- If wound is large or contaminated and patient has history of > 3 doses of TT, give one booster dose
- If wound is large or contaminated with no history or unknown history of previous TT vaccination, 3 dose series of TT plus tetanus immunoglobulin 250 IU IM stat.

No role of antibiotics in prophylaxis.

29. Which of the following is the drug of choice for non falciparum malaria?

A. Mefloquine

B. Artemether/lumifentrene

C. Chloroquine ✓

D. Quinine

E. Malarone

Urgent

20,000

RBC's

Thin drop

ALT

2000

Ans: Chloroquine

Explanation: The drug of choice for non falciparum malaria is chloroquine as it is highly effective against P. Malariae, P. Ovale and P. Vivax. Artemether + lumifentrene is the drug of choice for P. Falciparum.

30. A 20 year old male presented with fever, abdominal pain and discharge from the wound of appendectomy which was done 1 month back. Examination showed a mass in right iliac fossa. Culture from the wound shows gram positive filamentous rods and sulphur granules. What should be the best initial treatment for him?

A. Penicillin for 6 months

B. Ceftriaxone for 6 months

C. Ciprofloxacin for 6 months

D. Doxycycline for 6 months

E. Co-trimaxazole for 6 months

45mg/weeks

8.

A

Ans: Penicillin for 6 months

Explanation: History and culture findings of filamentous rods with sulphur granules are diagnostic of actinomycosis. Abdominal actinomycosis is a rare Infection and occurs due to a destruction of mucosal barriers including perforated bowel, trauma, appendectomy, or after endoscopic procedure. The treatment of choice is 2-6 weeks of IV penicillin G followed by 6-12 months of oral penicillin.

- If wound is large or contaminated and patient has history of > 3 doses of TT, give one booster dose
- If wound is large or contaminated with no history or unknown history of previous TT vaccination, 3 dose series of TT plus tetanus immunoglobulin 250 IU IM stat.

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low drop

ALT

2000

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45ng/weeks

⑧-

A

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31. A 35 year old female with a history of resistant ITP is advised to have splenectomy. When should she be given the pneumococcal vaccine?
    - A. 3 days before surgery
    - B. 1 week before surgery
    - C. At the day of surgery
    - D. 2 weeks before surgery ✓
    - E. 2 weeks after surgery

Ox: Levo-
Rifam

Ans: 2 weeks before surgery

Explanation: Patients with splenectomy are at risk of developing sepsis due to encapsulated organisms and vaccination against pneumococcus, meningococcus and H. Influenzae should be done 2 weeks before surgery.

32. A 25 year old male presented with painful lumps in his both groins for 1 week. He also has a painless ulcer on the shaft of his penis. Examination showed enlarged and tender inguinal lymph nodes with erythematous overlying skin. What is the most likely diagnosis?
    - A. Genital warts
    - B. Lymphogranuloma venereum ✓
    - C. Primary syphilis
    - D. Chancroid
    - E. Herpes simplex Infection

pain
plain

Ans: Lymphogranuloma venereum

Explanation: Lymphogranuloma venereum begins as a painless ulcer on penis followed by painful lymphadenopathy with buboes formation. It is differentiated from syphilis by its appearance and painful lymphadenopathy and from herpes and chancroid as these both cause painful ulcers. Lymphogranuloma venereum is caused by chlamydia.

33. A 22 year old male presented with history of dysuria and a mucopurulent discharge from his urethra for 5 days. Gram stain from the urethral swab showed gram negative diplococci. What is the treatment of choice for him?
    - A. Oral ciprofloxacin
    - B. Oral Cefixime
    - C. Oral azithromycin

D. IM ceftriaxone

E. IV ceftriaxone

Ans: IM ceftriaxone

Explanation: The history of dysuria with urethral discharge with gram negative diplococci on gram stain suggest gonorrhea as the most probable diagnosis. The treatment of choice for gonorrhea is a single injection of ceftriaxone 250-500 mg IM stat. Oral azithromycin 1 g stat should also be given along with ceftriaxone IM to cover chlamydia infection which is also present concomitantly.

34. Which of the following is the most common cause of hospital acquired diarrhea and vomiting?

A. Clostridium difficile

B. Bacillus cereus

C. Norovirus ✓

D. Rota virus

E. E. Coli

Ans: Norovirus

Explanation: Norovirus, also called vomiting bug sometimes, is the most common cause of acute gastroenteritis in a hospital setting. It is also the most common cause of epidemic viral gastroenteritis and accounts for over 90% of cases.

35. A 26 year old male presented with history of diarrhea, flatulence, bloating, abdominal cramps and lethargy for 1 month after returning from a trip to Kashmir. Stool examination showed cysts. What is the most likely diagnosis?

A. Amoebiasis

B. Cholera

C. Giardiasis ✓

D. Tropical sprue

E. Cryptosporidiosis

Giardia

Ans: Giardiasis

Explanation: History of camping or travel to hilly areas=> chronic diarrhea with symptoms of malabsorption=> Giardiasis (can cause transient lactose intolerance which leads the symptoms of chronic diarrhea). Diagnosis is made by identification of trophozoites or cysts in the stool. Treatment is metronidazole or tinidazole. Paromomycin is used in pregnancy.

36. A 26 year old university student presented with headache, photophobia and neck stiffness for 3 days. There is also a maculopapular rash involving lower limbs. LP showed pyogenic meningitis. Which of the following antibiotics should be used as chemoprophylaxis for his roommates?

   A. Ciprofloxacin ✓
   B. Penicillin V
   C. Rifampicin
   D. Ceftriaxone IM
   E. Doxycycline

Nei py

4

Cipro

Ans: Rifampicin

Explanation: Rifampicin 600mg twice daily for 2 days is the preferred antibiotic for chemoprophylaxis of close contacts of meningococcus. It should be administered as soon as possible within 24 hours after the case is identified. Ciprofloxacin 500 mg single dose is alternative to rifampicin and for patients who are on OCPs. Ceftriaxone IM 250-500 mg for pregnant patients.

37. A 26 year old male presented with a painless ulcer on his penis for 2 weeks. VDRL is positive. What treatment should be given to this patient?

   A. Procaine penicillin
   B. Benzathine penicillin ✓
   C. Azithromycin
   D. Doxycycline
   E. Cefixime

Ans: Benzathine Penicillin

Explanation: This patient is most probably having early syphilis as the cause of his ulcer. In adults and adolescents with early syphilis, benzathine penicillin G 2.4 million units IM stat is recommended. It is preferred over procaine penicillin G 1.2 million units which is used for 10-14 days. Doxycycline 100 mg BD for 2 weeks or ceftriaxone 1g IM OD for 2 weeks are used in penicillin allergic patients.

For late syphilis or unknown stage of syphilis, benzathine penicillin 2.4 million units IM weekly for 3 consecutive weeks. It is preferred over procaine penicillin 1.2 million units OD for 20 days. In penicillin allergic, doxycycline 100 mg BD for 1 month.

38. A 47 year old male with history of AML on chemotherapy has developed fever. CBC showed neutropenia. He was started on IV meropenem and vancomycin. After 3 days of starting antibiotics, patient is still pyrexial and feeling unwell. Which of the following should be started next in this patient?

    A. IV gentamicin
    B. IV fluconazole
    C. IV amphotericin B ✓
    D. IV acyclovir
    E. IV ganciclovir

MCL MRSA

Ans: IV amphotericin B

Explanation: This patient is in neutropenic sepsis and still have fever after starting meropenem and vancomycin which cover almost all the important bacteria. It is recommended that if patient remains pyrexial 3 days after antibiotics therapy, consider adding amphotericin B to cover the invasive fungal infections like candidiasis or aspergillosis. Amphotericin B is preferred over IV fluconazole as empirical treatment in neutropenic sepsis.

39. A 26 year old 16 weeks pregnant female came for your advice as she has come in contact with chicken pox at home. She told you that she had some disease as a child with rash but not sure about the exact nature of rash. Which of the following is the next appropriate step?

    A. Varicella zoster immunoglobulin ✓
    B. Varicella vaccine
    C. Oral acyclovir
    D. Varicella antibody titer test
    E. IV acyclovir

Ans: Varicella antibody titer test

Explanation: If a patient is pregnant and has an exposure to chicken pox patient, the next step is to take history of previous infection. Reliable history of previous infection is a sign of immunity. If there is no history or unreliable history, the next best step is to check the varicella zoster antibody titer because the majority of adults who have negative or uncertain history are also sero-positive (71-93%). If the antibody level is high, no further management. If low titer of antibodies is present, varicella zoster immunoglobulin should be given to pregnant female as vaccine is contraindicated in pregnancy. Oral acyclovir is also not recommended in pregnancy of less than 20 weeks.

40. A 45 year old gardener stuck by a rose thorn presented with an ulcer at the site of inoculation of thorn. Initially, it was a nodule which subsequently ulcerate and there is purulent discharge. Which of the following is the best treatment for this?

   A. [✓ Itraconazole]
   B. Amphotericin B
   C. Co-amoxiclav
   D. Potassium iodide
   E. Moxifloxacin

A

Ans: Itraconazole

Explanation: Ulcer after a thorn inoculation which started as a nodule and then ulcerate with purulen discharge is due to sporotrichosis which is caused by sporothrix schenckii. The best treatment for this i oral itraconazole or fluconazole for 3- 6 months. Potassium iodide and terbinafine are alternative agents Amphotericin B is used in life threatening disseminated disease.

41. Which of the following intervention is used to prevent early and late onset post herpetic neuralgia in herpes zoster infection?

   A. [✓ Acyclovir]
   B. Amitriptyline
   C. Oral prednisone
   D. Gabapentin
   E. Tramadol oral

Ans: Acyclovir

Explanation: Acyclovir treatment in herpes zoster reduces pain by day 10 and reduce the risk of post herpetic neuralgia by 8%. Early treatment with oral acyclovir is recommended for this purpose in shingles. Amitriptyline or gabapentin are used in the treatment of post herpetic neuralgia but they have no role in reducing the risk of developing post herpetic neuralgia. Steroids have no proven role.

42. A 45 year old male with non Hodgkin's lymphoma on chemotherapy has developed varicella zoster of S1 and S2 dermatomes. Patient has taken oral acyclovir for 4 days but his lesions are worsening and pain is getting worse. What should be the next best management for him?

A. Continue oral acyclovir for 2 weeks

B. Start IV acyclovir+ steroids

C. Start IV acyclovir+ lamivudine

D. Start IV acyclovir + amantadine

E. IV foscarnet

HBV

Ans: Start IV acyclovir+ Steroids

Herpes

Explanation: In immunocompromised patients, initial treatment with oral acyclovir is used but if the lesions get worse or pain is more, the next step is IV acyclovir with or without short term steroids to reduce the pain. IV foscarnet is used in acyclovir resistant cases.

43. A 24 year old female presented with dysuria and a painful ulcer on her vulva for 1 week. Examination showed erythematous base of ulcer and tender inguinal lymphadenopathy. Most likely organism causing this problem is:

A. Cytomegalovirus

B. Gonococcus

C. Treponema

D. HSV-2

E. Chlamydia

20

0.6

0.2

PC.

Ans: HSV-2

Explanation: Painful genital lesion with tender inguinal lymphadenopathy is most likely occurs due to HSV-2 infection. Tzank smears can be used initially if no typical vesicles are seen. Best diagnostic test is HSV PCR of vesicular fluid. Treatment is acyclovir.

44. A 26 year old female presented with fever, malaise and a painful skin rash on face for 3 days. Examination showed red, indurated, tense and well demarcated rash with sharply raised borders. Which of the following organism commonly causes this problem?

A. Staphylococcus aureus

B. Staphylococcus epidermidis

C. Streptococcus pyogenes

D. Streptococcus pneumoniae
E. Streptococcus agalactiae

Ans: Streptococcus pyogenes

Explanation: The history and examination is typical of erysipelas which causes well demarcated advancing margins and a sharply raised border. The cause of erysipelas is streptococcus pyogenes (group A beta hemolytic). Penicillin IV or oral is the drug of choice. cef.

45. A 36 weeks pregnant patient has developed chicken pox and she presented in emergency with fever and vesiculo pustular lesions. What treatment should be given to her?
A. Supportive treatment only
B. Varicella immunoglobulins
C. Acyclovir ✓
D. Steroids
E. Immediate delivery

Ans: Acyclovir

Explanation: Pregnant patients who have developed chicken pox, varicella immunoglobulins have no benefit and therefore not used in treatment of chicken pox disease. Pregnant women are at increased risk of varicella associated complications, so oral acyclovir should be given if pregnancy is more than 20 weeks. IV acyclovir is used in severe disease. If maternal infection occurs in the last 4 weeks of pregnancy, there is a significant risk of varicella infection of the newborn, so a planned delivery should normally be avoided for at least 7 days after the onset of maternal rash to allow for the passive transfer of antibodies from mother to fetus.

46. A 21 year old female who is 24 weeks pregnant has developed toxoplasmosis. What treatment should be given to her?
A. Trimethoprim
B. Sulphadiazine
C. Pyrimethamine
[✓ D. Spiramycin]
E. Doxycycline

Py Sulph

Ans: Spiramycin

Explanation: If a pregnant female develops toxoplasmosis, there is a risk of transmission of infection to the fetus which leads to congenital toxoplasmosis in neonate. If acute infection develops in pregnancy which is diagnosed with IgM antibodies against toxoplasma, immediate treatment with spiramycin should be started. Spiramycin is used to prevent spread of organism across the placenta from mother to fetus. A combination of pyrimethamine, sulfadiazine and folic acid should be given to pregnant women in whom fetal infection is confirmed by positive amniotic fluid PCR.

47. A 27 year old patient presented with high grade fever, headache and myalgia for 3 days. He has history of malaria 3 weeks back which was successfully treated with chloroquine. Which malaria species is responsible for his current presentation?
    - A. P. Falciparum
    - B. P. Malariae
    - C. P. Vivax ✓
    - D. P. Knowlesi
    - E. P. Recurrentis

90

Ans: P. Vivax

Explanation: This is recurrent malaria, which is caused by P. Vivax and P. Ovale. These species have a hypnozoite stage and may relapse following a successful initial treatment. Patients with ovale and vivax malaria should be given primaquine following acute treatment with chloroquine to destroy liver hypnozoite and prevent relapse.

48. A 29 year old male from village background presented with history of high grade fever and headache for 3 days. Examination showed temperature of 104 F° and a pulse of 115/min. A thick and thin film are sent to lab and you received a call from lab that patient has plasmodium falciparum with a parasitemia of 2.5% and presence of schizonts. What is the most appropriate initial treatment for him?

2

- A. IV quinine
- B. IV artesunate
- C. Oral chloroquine
- D. Oral artemether
- E. Exchange transfusion

Ans: IV artesunate

Explanation: This patient has severe malaria as shown by the level of parasitemia and the presence of schizonts. The recommended treatment for severe malaria is IV artesunate and it is preferred over IV quinine. Features of severe falciparum malaria are:

- Unstable coma/ Cerebral malaria
- Acidosis with pH < 7.25 or HCO3 < 15
- Severe normocytic normochromic anemia with HCT < 15% or HB < 5
- Renal failure with creatinine > 3 or urine output < 400 ml in 24 hours
- ARDS
- Hypoglycemia with glucose < 40
- Shock with SBP < 80 mmhg and capillary refill time > 2 second
- DIC
- More than two generalized seizures in 24 hours
- Presence of schizonts
- Parasitemia > 2%

160

Artesunate 2.4 mg/kg stat IV followed by 2.4 mg/kg at 12 and 24 hour and then daily is the treatment o choice. If unavailable, artemether 3.2 mg/kg stat IM followed by 1.6 mg /kg per day for 3 days. Exchange transfusion is considered when parasitemia is > 10%.

49. A 35 year old traveller came for your advice before going for a trip to Balochistan where chloroquine resistant falciparum is endemic. He wants prophylactic medications for prevention but don't want to take medication daily. Which medicine you will recommend for him as prophylaxis?

A. Malarone ⇒ Proguan.
Chloro.
B. Doxycycline
C. HCQ sulfate
D. Mefloquine ✓
E. Primaquine

Ans: Mefloquine

Explanation: For chloroquine resistant falciparum areas; malarone, doxycycline and mefloquine all can b used. As patient does not want to take medication daily, mefloquine is better choice for him.

- Mefloquine is taken as 1 tablet weekly, starting 1-2 weeks before going to malarious areas, then weekly while in the area and for 4 weeks after leaving such area. It can also be used in pregnancy.
- Malarone 1 tablet is taken daily starting 1-2 days before, during and 7 days after returning.
- Doxycycline 100 mg daily is taken 1-2 days before, during and 4 weeks after returning from such areas.

50. Which of the following is not a characteristic feature of falciparum malaria?

    A. Invades erythrocytes of all ages

    B. Cerebral malaria

    C. Parasitemia of 5%

    D. All stages of plasmodium present on smear examination

    E. Blackwater fever

Ans: All stages of plasmodium present on smear examination

Explanation: All of the above are the characteristics features of falciparum malaria except that all stages of plasmodium development are evident on smear examination. Three important pathogenic processes are central to the falciparum malaria:

- Cytoadherence: Within 12-15 hours of cell's invasion of falciparum, knobs like structures appear on RBCs that mediates attachment of RBCs to venules and capillaries which is called cytoadherence. This causes blockage of capillaries and venules.
- Rosetting: Adherence of infected RBCs to uninfected RBCs is called rosetting.
- Agglutination: Adherence of infected RBCs to other infected RBCs is called agglutination.

These three processes result in the sequestration of RBCs containing mature forms of the parasite in vital organs like brain, where they interfere with microcirculation and metabolism and cause cerebral malaria. Sequestered parasites are also out of reach of the host defense mechanism i.e. splenic processing and filtration. As a result, only the younger ring forms of the asexual parasites are seen on peripheral film in falciparum malaria. On the other hand, sequestration is not a feature of other species and all stages of parasites are seen on PF. Falciparum can invade erythrocytes of all ages whereas vivax and ovale infect young RBCs and malariae infects old RBCs.

51. Which of the following parasite has the primary site of localization in the lymphatics?

    A. Loa loa
    B. Onchocerca volvulus
    C. [✓ Wuchereria Bancrofti]
    D. Mansonella azzardi
    E. Dracunculus

Ans: Wuchereria bancrofti

Explanation:

- Adult worms of W. Bancrofti primarily live in lymphatic tissue and microfilaria live in blood.
- Adult worms of loa loa live in subcutaneous tissues and microfilaria in blood.
- Adult worms of onchocerca lives in subcutaneous tissues and microfilaria in skin and eye.
- Dracunculus lives in subcutaneous tissues.

52. A 32 year old male presented with headache, neck stiffness, photophobia and fever for 4 days. He is unable to touch his chin with his sternum. Which of the following organism is not a cause of such presentation?

    A. [✓ Pneumococcus]
    B. [✓ Meningococcus]
    C. [✓ Mumps]
    D. [✓ Rabies]
    E. [✓ Herpes simplex]

Ans: Rabies

Explanation: All of the above can cause meningitis except rabies which causes encephalitis.

53. A 26 year old male presented with history of dog bite with multiple wounds on lower limb and hands. After wound management and injecting rabies immunoglobulins, what schedule of vaccination should be given?

    A. 0, 3,21, 28
    B. 0,3,7,14,28
    C. 0,7,14,28

D. 0,7,21

E. 0,3,,7,90

Ans: 0,3,7,14,28

Explanation: WHO recommends 5 dose vaccination schedule as post exposure prophylaxis of rabies. Another schedule which is commonly used in Pakistan is 2-0-1-0-1 with 2 doses given on day 0 and an additional one dose is administered on day 7 and 21. CDC guidelines omit 28th day dose in immunocompetent persons.

Remember that rabies in 100% fatal and vaccination for rabies is 100% protective. Vaccination is needed for dog, cat, bats and wild animals (raccoons, foxes) bite. Not needed for rabbit, rat and monkey bites.

54. Which of the following is the most common complication of mumps?

A. Pancreatitis

B. Meningitis

C. [✓ Orchitis]

2

D. Encephalitis

Encephalit

E. Arthritis

Ans: Orchitis

Explanation: Epidydimo-orchitis is the most common complication of mumps occurs in almost 25 % of males followed by aseptic meningitis which is present in 10% of patients.

Remember:

- Mumps rarely causes infertility
- Meningitis caused by mumps have low glucose in CSF
- If patient complains of abdominal pain, check amylase and lipase (better than amylase).

55. Which of the following is a warning sign and is an indication for intravenous fluid administration in a patient of confirmed dengue fever?

A. Positive tourniquet test

B. Leucopenia

C. Rapid increase in hematocrit

D. Fever of 103 F°

E. Worsening of rash

Ans: Rapid increase in hematocrit

Explanation: Warning signs in a patient with dengue fever are:

- Abdominal tenderness
- Persistent vomiting
- Pleural effusion or ascites
- Mucosal bleeding
- Lethargy
- Hepatomegaly > 2 cm
- Rapid increase in hematocrit with fall in platelets count.

These patients need regular monitoring and IV fluids therapy.

56. A 31 year old healthy male presented with low grade fever and myalgias. Labs were done which showed positive IgM toxoplasma antibodies. What treatment should be started in this patient?

A. Spiramycin

B. Trimethoprim

[✓ C. Sulphadiazine+ pyrimethamine]

D. Paracetamol

E. Co-trimaxazole

Ans: Paracetamol

Explanation: Toxoplasmosis in immunocompetent persons is a self limiting disease and does not need antibiotics treatment. Only supportive treatment is sufficient.

57. A 26 year old male presented with history of high grade fever with right upper quadrant pain for 1 week. Patient has history of bloody diarrhea 2 months back. Ultrasound abdomen showed liver abscess in right lobe. What treatment should be given?

A. Metronidazole

B. Metronidazole+ ciprofloxacin

C. Ciprofloxacin+ cefixime

AC

D. Metronidazole+ diloxanide

E. IV ceftrioxone+ IV metronidazole

Ans: Metronidazole+ diloxanide

Explanation: This patient is most probably having amebic liver abscess. The treatment is metronidazole and diloxanide to eliminate luminal cysts. Ultrasound should be done after 1 month to confirm the resolution of abscess as initially during treatment, the size of abscess is increased.

58. A 17 year old male is investigated for iron deficiency anaemia by stool analysis which showed thin-shelled and colorless eggs of ankylostoma. What is the treatment for this?

A. Albendazole 400 mg for 3 days

B. [✓ Albendazole 400 mg stat]

C. Ivermectin for 2 days

D. Praziquantel 2 doses for 1 day

E. Mebendazole 100 mg Stat

Ans: Albendazole 400 mg stat Alk.

Explanation: A single dose of 400 mg albendazole is the treatment of choice for ankylostoma. Alternatively, mebendazole 100 mg twice daily for 3 days may be used.

59. A 24 year old female is 15 weeks pregnant and is diagnosed as having active hepatitis C. She wants to know about the risk of transmission of hepatitis to her baby. What is the risk of vertical transmission of hepatitis C?

A. 0.03%

B. 90%

C. 30%

D. [✓ 5%]

E. No risk

20
0.5
0.5

Ans: 5%

Explanation: Vertical transmission is the most common cause of hepatitis C in children. The world wide prevalence of hepatitis C in pregnancy is 1-8%. There is a 3-5% risk of vertical transmission of infection from an infected mother to newborn. Currently, there is no specific intervention known to decrease vertical transmission. The primary diagnostic test for exposed infants is anti HCV at 12-18 months of age. PCR can be performed at 2 months and is the most sensitive and specific test, but expensive. For hepatitis

B, the risk of vertical transmission in 20-30%. Factors which increased the risk of vertical transmission of hepatitis B are the presence of HbeAg, high viral load, HIV co-infection and genotype B2 infection.

60. A 35 year old farmer presented with a painless ulcer on his hand with a black eschar. Examination showed central ulcer with moist base. There is no other complaints. Gram stain from the ulcer fluid showed gram positive rods. What is the treatment of choice for this?

   A. Amoxicillin
   B. Ceftriaxone
   [✓ C. Ciprofloxacin]
   D. Azithromycin
   E. Doxycycline

20
0.5
0.3

Ans: Ciprofloxacin

Explanation: The history of ulcer and typical black eschar and the presence of gram positive rods on gram stain suggest the diagnosis of cutaneous anthrax.

- The treatment of choice for cutaneous anthrax is ciprofloxacin 500 mg BD. Doxycycline is alternative.
- For systemic anthrax without meningitis, the recommended treatment is ciprofloxacin 400 mg TDS + Clindamycin 900mg TDS.
- For anthrax meningitis, the recommended treatment is ciprofloxacin 400 mg TDS+ meropenem 2 g TDS+ linezolid 600 mg BD.

Treatment duration is 3 weeks or until clinical improvement, whichever is longer.

61. A 26 year old male presented with painless and non pruritic macules on palms and soles associated with lymphadenopathy for 2 weeks is suspected to have secondary syphilis. Which of the following is the most appropriate rapid screening test for him?

   [✓ A. RPR test]
   [✓ B. FTA-ABS]
   C. TPPA
   D. IgM antibodies
   E. Culture

VDRL

ML

Ans: RPR test

Explanation: Rapid plasma reagent (RPR) and VDRL are non treponemal tests used for the screening of syphilis in a clinical setting. These two tests are recommended for screening and for quantification of serum antibodies. Titers of these antibodies are used to assess disease activity and to monitor response to treatment. FTA-ABS and TPPA are treponemal specific tests which are used to confirm the diagnosis. These tests cannot be used to monitor disease activity and response to treatment, because they remain positive even after successful treatment. These tests cannot differentiate between past or current infections.

62. A 35 year old male presented with headache, vomiting and neck stiffness and is diagnosed as a case of meningitis. Despite adequate antibiotics treatment, symptoms not improved. Labs were done which showed very high titers of RPR and VDRL. A suspicion of neurosyphilis was made. CSF VDRL is also positive. What is the treatment of choice for him?
    - A. [✓ Penicillin G IM one dose]
    - B. Benzathine penicillin weekly for 3 weeks
    - C. Ceftriaxone 2 g BD for 2 weeks
    - D. [✓ Aqueous penicillin 4 hrly for 2 weeks]
    - E. Doxycycline 100 mg BD for 4 weeks

Ans: Aqueous penicillin 4 hrly for 2 weeks

Explanation: Positive VDRL in the CSF is a highly specific test for diagnosis of neurosyphilis and the treatment of choice is Aqueous crystalline penicillin G 18-24 mU IV given as 3-4 millions units 4 hrly for 10-14 days.

63. A 36 year old sanitary worker presented with fever, myalgias and feeling unwell for 1 week. Examination showed fever of 103 F° and conjunctival suffusion. Labs showed high WBC count with deraineged LFTs and RFTs. What infection should be suspected in this patient?
    - A. Brucellosis
    - B. Dengue fever
    - C. Severe malaria
    - D. [✓ Leptospirosis]
    - E. Typhoid fever

Ans: Leptospirosis

Explanation: Although all of the above infections can present with fever and deranged LFTs and RFTs; in a sanitary worker with fever and deranged LFTs and RFTs, severe leptospirosis should be considered. It presents as an acute febrile illness with headache, myalgia (calf muscles) and feeling unwell with any of the following: conjunctival suffusion, oliguria, jaundice, cough, SOB, meningitis, and skin rash. IgM ELISA is a rapid screening test. Confirmation is by culture of blood or stools. Drug of choice is benzyl penicillin 1.2 G 6 hrly for 1 week. Ceftriaxone can also be used. Doxycycline in penicillin allergic.

64. Which statement is most accurate regarding the presentation of early disseminated (stage 2) Lyme disease?

   A. Cardiac symptoms are more common compared with musculoskeletal and neurologic symptoms in stage 2 Lyme disease
   B. Fever is only associated with stage 1 Lyme disease, as opposed to stage 2 Lyme disease
   C. In patients with stage 2 Lyme disease who have cutaneous involvement, multiple small (1-5 cm), oval erythema migrans lesions are present
   D. Severe conjunctivitis is the most common ocular manifestation of stage 2 Lyme disease
   E. Antibodies to borrelia are protective to further episode

Ans: In patients with stage 2 Lyme disease who have cutaneous involvement, multiple small (1-5 cm), oval erythema migrans lesions are present.

Explanation: Stage 2 Lyme disease usually develops 3-10 weeks after inoculation. Systemic manifestations may include fever and malaise. One or more organ systems become involved as hematologic or lymphatic spread disseminates spirochetes to distant sites. Musculoskeletal and neurologic symptoms are the most common; less common are symptoms from cardiac disturbances, such as dizziness, syncope, dyspnea, chest pain, and palpitations. In patients with cutaneous involvement, multiple erythema migrans lesions are present. These are relatively small erythematous macules (1-5 cm) that are often oval. Unlike primary single erythema migrans rash, these lesions can be evanescent and do not show the typical expansion over days. Ophthalmic manifestations vary by disease stage. In stage 1 Lyme disease, the ocular manifestations are conjunctivitis and photophobia. These are mild and transient, and ophthalmologists usually need not be consulted. Significant ophthalmic complications may appear during stage 2 Lyme disease. Blurred vision can be noted during stage 2, secondary to papilledema, optic atrophy, optic or retrobulbar neuritis, or pseudotumor cerebri. Optic nerve disease may be unilateral or bilateral, and solitary or associated with other neurologic or neuro-ophthalmologic manifestations. Patients who have had Lyme disease should be advised that antibodies induced by the infection are not protective against further exposures to B burgdorferi — one episode of erythema migrans does not always confer immunity to the next exposure.

65. A 27 year old female presented with bilateral facial nerve palsy for 3 days. She also complains of headache and examination showed neck stiffness. She remembers going on hiking in a forest 3 months back. CSF analysis showed positive serologic antibodies to borrelia. What is the treatment of choice for her?

A. Doxycycline 100 mg oral
B. Amoxicillin 500 mg oral
C. Ceftriaxone 2g IV
D. Cefixime 400 mg oral
E. Azithromycin 1 g oral

Ans: Ceftriaxone 2g IV

Explanation: There are three stages of Lyme disease based on early and late manifestations of the disea

Stage 1, early localized infection:

- Erythema migrans; 1 week after tick bite.
- Viral like illness with myalgia, headache and fatigue

Stage 2, early disseminated disease:

- Days to weeks after primary infection
- Skin lesions similar to primary lesions but slightly smaller
- Viral like illness are present
- Cardiac involvement like myopericarditis, atrial and ventricular arrhythmia and AV block
- Neurological manifestations like aseptic meningitis, unilateral or bilateral facial nerve pals sensory or motor radiculopathy and mononeuritis multiplex. (Aseptic meningitis is the most common CNS involvement and facial palsy is the most common peripheral manifestation).
- Conjunctivitis, keratitis and panophthalmitis rarely.

Stage 3, late persistent infection:

- Months to years after primary infection
- Monoarticular or oligoarticular arthritis of knee or weight bearing joints (classic manifestation)

- Sub-acute encephalopathy characterized by memory loss, mood change and sleep disturbance
- Intermittent paresthesia in a stocking distribution
- Acrodermatitis chronicum atrophicans

Laboratory confirmation requires serologic tests to detect specific antibodies to B burgdorferi in serum by ELISA.

Treatment of Lyme disease:

Manifestations	Treatment
Tick bite	Observe only
Erythema migrans	Doxycycline 100 mg BD for 10-14 days or Amoxicillin 500 mg TDS for 2-3 weeks or Cefuroxime axetil 500 mg BD for 2-3 weeks
Facial palsy without meningitis	As for erythema migrans
Facial palsy with meningitis	Ceftriaxone 2g IV OD or Penicillin G, 18-24 million units daily in 6 divided doses or Cefotaxime 2g TDS **All for 2-4 weeks**
Cardiac disease	IV treatment as for meningitis
Arthritis	Oral doxycycline for 4 weeks, if response, continue for further 4 weeks. If no response to oral doxycycline, IV ceftriaxone for 4 weeks.

66. A 56 year old diabetic with poor control of diabetes presented with right sided facial swelling and periorbital swelling. Examination showed a black lesion inside the nose and at the hard palate. Scrapping from the lesion shows ribbon like hyphae. Given the likely diagnosis, which drug should be started in this patient?

   A. IV fluconazole
   B. IV Itraconazole
   C. IV amphotericin B
   D. Oral voriconazole
   E. IV posaconazole

Ans: IV amphotericin B

Explanation: History of facial swelling with black lesion on hard palate in a poorly controlled diabetic patient with typical ribbon like hyphae is diagnostic of mucormycosis. Surgical debridement with medical treatment is strongly recommended to increase the survival. Liposomal amphotericin B is the drug of choice at a dose of 5 mg/kg/day. Posaconazole is second line treatment for salvage therapy. All othe azole drugs should be avoided in mucormycosis because they worsen the disease.

67. A 36 year old female, with history of Crohn disease on parenteral nutrition for 3 weeks, presente with high grade fever and chills with shortness of breath. Examination showed a pansystolic murmur at tricuspid area. Patient was started on vancomycin and gentamicin for suspected endocarditis but after four days of therapy, fever not settled. Fundoscopy was done which showe macular abscess with string of pearls appearance. What is the likely diagnosis?

   A. Disseminated TB
   B. Brucellosis
   C. [✓ Invasive candidemia]
   D. MRSA Sepsis
   E. Whipple disease

Ans: Invasive candidemia

Explanation: Parenteral nutrition is one of the major risk factor for invasive candidemia which can presents with septic shock, endocarditis and endopthalmitis. The string of pearls appearance of multipl vitreous abscesses (cotton wool exudate) on fundoscopy is classical for candidemia. Caspofungin 70 mg stat then 50 mg once daily is the recommended drug of choice. Fluconazole is alternative treatment. Central venous line should be removed as soon as possible in candidemia.

68. A 36 year old male presented with high grade fever associated with headache and nausea for 3 days. Examination showed temperature of 103F° with a pulse rate of 72/min. Which of the following is the most probable diagnosis?

   A. Malaria
   B. Liver abscess
   C. Typhoid fever
   D. Dengue fever
   E. Pneumococcus pneumonia

1°C
15/m

Ans: Typhoid fever

Explanation: Fever with headache and relative bradycardia is classically associated with typhoid fever.

69. A 26 year old male from a village background presented with high grade fever and headache for 8 days. CBC showed low WBCs and platelets. You suspect typhoid fever. What test is used to confirm your diagnosis at this stage?

   A. Blood culture
   B. Widal test ✓
   C. Typhidot test
   D. Urine culture
   E. Stool culture

B A
1 ②

Ans: Blood culture

Explanation: Blood culture is used for the confirmation of diagnosis of typhoid fever in 1st 2 weeks of presentation. Widal test and typhidot tests are obsolete now and should not be used for the confirmation of diagnosis. Stool culture becomes positive in 3rd week and urine culture in 4th week.

Remember that blood culture is always the best test in all weeks for the confirmation of diagnosis of typhoid fever.

70. Which of the following is the most common cause of death in a patient with untreated typhoid?

   A. Sepsis
   B. Bowel perforation

C. Endocarditis

D. Meningitis

E. GI bleeding

Ans: Bowel perforation

Explanation: The most important and life threatening risk of untreated typhoid fever is bowel perforation which is also the most common cause of death in these patients.

71. A patient from rural area of south Punjab presented with history of fever with rigors and chills for 3 months not responding to antibiotics and antimalarial. Examination showed pallor, hyperpigmentation and hepatosplenomegaly. Labs were done which showed pancytopenia. Which of the following is the most probable diagnosis?

A. Resistant malaria

B. XDR typhoid

C. Leishmaniasis

D. Tuberculosis

E. Schistosomiasis

Ans: Leishmaniasis

Explanation: Fever, massive splenomegaly, pancytopenia, hyperpigmentation and non-responsiveness to antibiotics and antimalarial is a clue towards the diagnosis of leishmaniasis.

72. A 27 year old male presented with fever and headache is diagnosed as a case of typhoid fever on blood culture. CBC of this patient will most probably show:

A. Thrombocytosis and anemia

B. Thrombocytosis and leukocytosis

C. Neutropenia and lymphocytosis

D. Anemia and thrombocytopenia

E. Thrombocytopenia and neutrophilia

Ans: Neutropenia and lymphocytosis

Explanation: The most common findings on CBC in typhoid fever is neutropenia with lymphocytosis. Reversible thrombocytopenia can also present.

73. Which of the following statements is correct regarding leprosy?

A. Spread by skin contact
B. Diagnosis is culture of skin
[✓ C. Spread by nasal droplets]
D. Tuberculoid leprosy is widely disseminated
E. Tuberculoid is more infectious than lepromatous

Ans: Spread by nasal droplets

Explanation: Leprosy is spread by nasal droplets followed by haematogenous spread to skin and nerve. It is not spread by skin to skin contact. Diagnosis is clinical and supported by finding acid fast bacilli in slit skin smears or histology of skin biopsy. Mycobacterium leprae is a slow growing bacteria and cannot be cultured. Tuberculoid leprosy is less infectious and usually have single and we'll defined lesions. Lepromatous leprosy is more infectious and widely disseminated with widespread nodules and infiltrations.

74. What is the recommended treatment duration for lepromatous or multibacillary leprosy?

A. 3 months
B. 6 months
C. 9 months
[✓ D. 12 months]
E. 15 months

2

Ans: 12 months

Explanation: Guidelines recommend 3 drug regimen with rifampicin, dapsone and clofazamine for all patients with leprosy, with a duration of treatment of **6 months for tuberculoid (paucibacillary)leprosy** and *12 months for lepromatous (multibacillary) leprosy.*

- Paucibacillary is called when there are 2-5 skin lesions, and multibacillary when > 5 skin lesions are present.
- Rifampicin dose is 600 mg once monthly supervised,
- Dapsone dose is 100 mg once daily self administered.
- Clofazamine 50 mg once daily self administered and 300 mg once monthly supervised.
- For rifampicin resistant cases, ofloxacin 400 mg+ clarithromycin 500 mg + clofazamine 50 mg fo 6 months followed by ofloxacin and clofazamine for 18 months is used.

75. A 45 year old male from DG Khan district presented with recurrent episodes of jaundice and fever. His stool examination showed characteristic egg of fasciola hepatica. What is the treatment of choice for him?

A. Praziquantel

B. Niclosamide

C. Triclabendazole

D. Bithionol

E. Nitazoxanide

Ans: Triclabendazole

Explanation: Fascioliasis is unusual among all flukes in that, it does not respond to praziquantel and drug of choice for this is triclabendazole. Bithionol is second line drug.

Treatment for helminthics:

Organism/Disease	Drug of choice	Alternate therapies
Schistosomiasis	Praziquantel 1 or 2 doses	Oxamniquine
Fasciola hepatica	Triclabendazole	Bithionol, Nitazoxanide
Clonorchis sinensis	Praziquantel	Albendazole, tribendimidine
Paragonimus wastermani	Praziquantel	Bithionol, triclabendazole
Taenia saginata, Taenia solium, diphyllobothrium latum, Hymenolepis nana	Praziquantel	Niclosamide
Cysticercosis	Albendazole	Praziquantel
Echinococcosis	Albendazole	Surgical resection
Ascariasis	Albendazole/mebendazole	Pyrantal pamoate, ivermectin
Trichuris trichiura	Albendazole or mebendazole	Ivermectin
Hook worms	Albendazole or mebendazole	Pyrantal pamoate, levamisole
Strongyloidiasis	Ivermectin	Albendazole, thiabendazole
Enterobius vermicularis	Albendazole or mebendazole	Pyrantal pamoate
Trichinosis	Albendazole or mebendazole	
Toxocariasis	Albendazole	Ivermectin
Cutaneous larva migrans	Albendazole	Ivermectin

Wuchereria bancrofti	Diethylcarbamazine	Albendazole, ivermectin
Onchocerciasis	Ivermectin	Doxycycline
Loiasis	Diethylcarbamazine	Albendazole

76. A 32 year old IV drug abuser is diagnosed as HIV positive after screening. He is otherwise asymptomatic. At what CD4 count, ART should be started in this patient?
    - A. < 250 cells/ mm3
    - B. < 350 cells/mm3
    - C. < 450 cells/mm3
    - D. < 500 cells/mm3
    - E. Start ART at any CD4 count

Ans: Start ART at any CD4 count

Explanation: The latest WHO guidelines recommend that ART should be initiated among all adults with a diagnosis of HIV regardless of clinical stage and at any CD4 count. As a priority, ART should be initiated with severe or advanced clinical disease and CD4 count < 350 cells/mm3. Remember, in Pakistan, the criteria for starting ART is < 500 CD4 cells.

77. A 40 year old male with HIV and CD4 count of 80 /mm3 has a fever and a right lower lobe infiltrates on chest x-ray. Which of the following organisms would be considered the most likely cause of this presentation in this patient?
    - A. Cytomegalovirus
    - B. Herpes simplex
    - C. Enterobacter
    - D. [✓ Legionella]
    - E. Candida albicans

pCP

Ans: Legionella

Explanation: Bacteria are the most common cause of pneumonia in HIV patients and pneumococcus is the most common cause of CAP in HIV.

78. Which of the following has the highest risk of HIV transmission after single exposure to an HIV infected source?

A. Vaginal intercourse

B. Insertive anal intercourse

C. Receptive anal intercourse

D. Blood transfusion

E. IV drug users sharing needles

Ans: Blood transfusion

Explanation: Transfusion of blood infected by HIV has a 90% risk of devolving HIV infection as compared to vaginal intercourse which has a risk of 0.1% and anal intercourse of 0.5%. There is 0.6% risk of sharing needle from IV drug abuser and 15% for transplacental transmission.

79. Which of the following is the most common route of transmission of HIV infection worldwide?

A. Heterosexual

B. Homosexual

C. IV drug abuser

D. Blood transfusion

E. Transplacental

Ans: Heterosexual

Explanation: Although the risk of transmission in heterosexual is less but still it is the most common route of transmission of HIV worldwide.

80. A 26 year old male presented with history of fever, sore throat, myalgia, headache and mouth ulcers for 2 weeks. Examination showed congested throat, maculopapular rash on hands with generalized lymphadenopathy. Patient has returned from a Thailand trip 3 weeks back. Which diagnosis should be considered in this patient?

A. Infectious mononucleosis

B. Streptococcal pharyngitis

C. HIV seroconversion

D. Acute toxoplasmosis

E. CMV infection

Ans: HIV seroconversion

Explanation: HIV seroconversion (acute HIV) develops 1-4 weeks after transmission and symptoms are mononucleosis- influenza like. HIV seroconversion should be considered in patients returning from a trip to Thailand and Middle East. **The best screening test for HIV seroconversion is p24 antigen test which becomes positive within 2 weeks of infection. Confirmation is by HIV PCR RNA viral load.** HIV antibody is negative in acute cases as it becomes positive 3-8 weeks after infection.

81. Which of the following is not an AIDS defining disease?
    - A. Esophageal candidiasis
    - B. Pneumocystis carinii
    - C. Cytomegalovirus colitis
    - D. Aspergillosis
    - E. Cryptococcus meningitis

Ans: Aspergillosis is not a AIDS defining disease.

82. A patient presented with history of multiple ulcerated papulonodular lesions on body with a red to purple color. Examination showed multiple lesions at the hard and soft palate and generalized lymphadenopathy. Patient is HIV positive. What is the likely diagnosis?
    - A. Bacillary angiomatosis
    - B. Sezary syndrome
    - C. [✓ Kaposi sarcoma]
    - D. Severe herpes simplex disease
    - E. Molluscum contagiosum

Ans: Kaposi sarcoma

Explanation: Red purple papulonodular lesions on skin and mucous membranes with lymphadenopathy in HIV patients is Kaposi sarcoma which is caused by human herpes virus 8.

83. A 36 years old female known case of HIV presented with recurrent episodes of genital herpes over the last 3 months. What should be the next best management step for her?
    - A. Suppressive dose of acyclovir
    - B. Cyclical acyclovir IV
    - C. Genital smear 6 monthly

D. PCP prophylaxis

E. Foscarnet therapy

Ans: Suppressive dose of acyclovir

Explanation: Two strategies exist for the therapy of recurrent genital herpes: episodic intermittent therapy or continuous suppressive therapy. In episodic intermittent therapy, acyclovir 200-400 mg three times daily for 5 days is used, but this strategy is less efficient than continuous suppressive acyclovir therapy. Continuous suppressive therapy is indicated in recurrent HSV disease that is frequent, severe or complicated. There is a theoretical reduction in the risk of HIV transmission and the advantage of improved viral RNA control with this approach. Acyclovir 400 mg twice daily is used as continuous suppressive therapy.

84. Which of the following is the most common cause of watery diarrhea in a patient with HIV infection?

A. Salmonella

B. Campylobacter

C. Cryptosporidium

D. Clostridium difficile

E. Mycobacterium aviam

DEC

Ans: Cryptosporidium

Explanation:

- Most common cause of watery diarrhea in HIV => **Cryptosporidium**
- Most common cause of colitis=> **Salmonella**
- Most common cause of diarrhea overall=> Bacterial diarrhea (salmonella)

Chronic Diarrhea is the most common complication of HIV.

85. An HIV positive patient has CD4 cells count of 40/mm3. What chemoprophylaxis should be given to him?

A. Co-trimaxazole

B. Clarithromycin

C. Pyrimethamine

D. Co-trimaxazole+ pyrimethamine

E. Co-trimaxazole + clarithromycin

Ans: Co-trimaxazole + Clarithromycin

Explanation: Co-trimaxazole prophylaxis should be given to patients with a CD4 count < 350/mm3. It is used for the prevention of both PCP and toxoplasmosis. Guidelines also recommend that for patients with CD count below 50/mm3, clarithromycin or azithromycin should be started to prevent mycobacterium aviam complex infection.

86. Which of the following is the most important measure for monitoring the ART therapy?
    - A. CD4 count
    - [✓ B. Viral load by PCR]
    - C. P24 antigen
    - D. Anti HIV level
    - E. Clinical staging

20000

Ans: Viral load by PCR

Explanation: The most important measure of ART efficacy is the measurement of viral load by PCR. It should be measured at baseline and then after 4-8 weeks of starting ART. At 8 weeks, there should be a tenfold decrease in level atleast. After that, PCR should be done every 3-6 months. Where PCR is not available, CD4 count can be used for monitoring.

87. A 38 year old, HIV positive patient with last CD4 count 150, presented with acute shortness of breath with cough for 1 week. Examination showed scattered crackles and marked desaturation on mild exertion. CXR showed reticulonodular shadowing in bilateral upper and middle zones. What is the most likely diagnosis?
    - A. Pulmonary tuberculosis
    - B. Aspergillosis
    - C. Pneumocystis carinii pneumonia
    - D. Histoplasmosis
    - E. Cytomegalovirus pneumonitis

Ans: Pneumocystis carinii pneumonia

Explanation: History of shortness of breath with x-ray worse than the clinical findings and marked desaturation on exertion in an HIV positive patient with CD4 count < 200 is suggestive of pneumocystis carinii pneumonia. Diagnosis is done by silver stain of BAL which will show characteristics boat shaped cysts.

88. A 42 year old HIV positive male presented with shortness of breath and cough for 3 weeks. Patient oxygen saturation is 90% on room oxygen but drops to 75% after going to washroom. ABGs were done which showed PaO2 of 60 mmhg. What treatment should be started in this patient?
    - A. Azithromycin+ ceftriaxone
    - B. Co-trimaxazole
    - [✓ C. Co-trimaxazole + Hydrocortisone]
    - D. Anti tuberculous therapy
    - E. Vancomycin + Levofloxacin

Ans: Co-trimaxazole+ hydrocortisone

Explanation: Exercise induced desaturation is a characteristic feature of PCP in a patient with HIV. The treatment of choice is co-trimaxazole 15-20 mg/kg/ day of trimethoprim Q6-8hrly (2 tablets of septran DS three times daily. If patient has PaO2< 70 mmhg, hydrocortisone should also be added which reduces the risk of respiratory failure by 50% and death by 33%.

Remember the dose of co-trimaxazole for prophylaxis is septran DS once daily or septran DS 1 tablet on alternate days. 1gm

89. A 37 year old female presented with history of abdominal pain with nausea and feeling unwell for 3 days. Pain is moderate to severe and gets worse after taking anything by mouth. Patient is a known HIV positive started on treatment 3 weeks ago. Labs showed high amylase and lactate level. What is the most likely diagnosis?
    - A. Epstein Barr virus infection
    - B. Gallstone pancreatitis
    - [✓ C. Didanosine associated pancreatitis]
    - D. Indinavir associated pancreatitis
    - E. Efavirenz associated pancreatitis

Ans: Didanosine associated pancreatitis

Explanation: The history and high amylase suggests pancreatitis as the diagnosis. The most common cause of pancreatitis in HIV positive patient is drug therapy and the most common drug causing pancreatitis s didanosine. Didanosine and other NRTIs like stavudine and zidovudine classically cause mitochondrial toxicity resulting in nausea, pancreatitis and lactic acidosis.

90. A 26 year old male who is HIV positive is presented in ER with confusion and drowsiness associated with headache. Examination showed low grade fever with a GCS of 14. No other abnormality is detected on examination. CT brain showed multiple ring enhancing lesions. What is the most probable diagnosis?

    A. CMV encephalitis
    B. Progressive multifocal leukoencephalopathy
    C. Cryptococcus meningitis
    D. Tuberculoma
    E. Cerebral toxoplasmosis ✓

Ans: Cerebral toxoplasmosis

Explanation: HIV=> confusion and headache=> multiple ring enhancing lesions on CT => cerebral toxoplasmosis. Tuberculoma mostly presents with single lesions and less common than toxoplasmosis.

91. A 28 year old male who is HIV positive with a CD4 count of 170 on co-trimaxazole prophylaxis treatment came for your advice regarding vaccination as he considers himself at risk of developing many infections. Which of the following vaccines can be given to him safely?

    A. MMR ✗
    B. Varicella ✓
    C. Cholera ✗
    D. Tetanus- diphtheria ✓
    E. Oral poliomyelitis ✗

VYM

Tips!

<200.

Exostu

DP

R

Ans: Tetanus- diphtheria

Explanation: Live attenuated vaccine should not be used in HIV patients.

Can be used	Use if CD4> 200	Contraindicated
Hep A	MMR	Cholera
Hep B	Varicella	Oral polio
HiB	Yellow Fever	Intranasal Influenza

Influenza parenteral		
Japanese Encephalitis		BCG
Meningococcus		
Pneumococcus		
Polio parenteral		
Td		
Rabies		

92. A 43 year old businessman presented with chronic watery diarrhea with weight loss for 3 months. Stool examination showed multiple red staining cysts on modified ZN stain. Further testing showed positive HIV antibody. What will be the most appropriate treatment for him?
    - A. Co-trimaxazole
    - B. Nitazoxanide
    - C. Isoniazid+ Clarithromycin+ ethambutol
    - D. HAART
    - E. Ciprofloxacin

Ans: HAART

Explanation: Chronic watery diarrhea with characteristic red cyst on ZN staining of stool in HIV positive patient suggests the diagnosis of cryptosporidiosis. Best treatment is starting HAART and supportive care. Nitazoxanide is used in immunocompetent persons and not recommended in patients with HIV.

93. A 34 year old female, who is HIV positive and started on HAART 1 month back, is bought by police as she was wandering naked on roads and asking everyone to help her to remove a device planted by FIA to monitor her thoughts. She is very difficult to manage. All of her labs, CT brain, LP and toxicology screen is negative. What is the likely cause of her presentation?
    - A. HIV encephalopathy
    - B. Progressive multifocal leukoencephalopathy
    - C. Efavirenz toxicity ✓
    - D. Tenofovir toxicity
    - E. Cerebral toxoplasmosis

Ans: Efavirenz toxicity

Explanation: Neuropsychiatric side effects of efavirenz have been described in up to 40% of patients showing dizziness, insomnia, unusual dreams, mood instability, personality alterations and thought disorders. Efavirenz toxicity should be considered in HIV patients who are started recently on HAART and developed psychosis. HIV encephalopathy can also presents like this but presentation is not acute.

94. A 35 year old male is diagnosed as a new case of HIV infection and he is considered for the treatment with HAART. Which of the following is the best initial treatment for him?

   A. Tenofovir+ efavirenz+ indinavir
   B. Tenofovir+ emtricitabine+ maraviroc
   C. [✓ Tenofovir+ lamivudine+ efavirenz] T E Lop
   D. Lamivudine+ emtricitabine+ atazanavir
   E. Tenofovir+ dolutegravir

Ans: Tenofovir+ lamivudine+ efavirenz

Explanation: The standard of care for treatment-naïve patient is a combination of two NRTI as back bone of HAART plus one NNRTI or integrase inhibitor. The preferred NRTIs are tenofovir disoproxil fumarate and emtricitabine or lamivudine. The preferred 1st line NNRTI is efavirenz or nevirapine. The preferred integrase inhibitor is dolutegravir. Guidelines recommend an initial three drugs regimen of TDF+ lamivudine/emtricitabine+ efavirenz. Alternative is TDF+ lamivudine+ dolutegravir (This is the new preferred 1st line treatment for treatment-naïve HIV patients).

95. An HIV patient is on HAART therapy has high lipid levels on routine follow up blood tests. Which of the following drug is responsible for hyperlipidemia?

   A. Zidovudine
   B. Nevirapine
   C. [✓ Atazanavir]
   D. Raltegravir
   E. Maraviroc

Ans: Atazanavir

Explanation: Hyperlipidemia, hyperglycemia and insulin resistance is a class effect of all the protease inhibitors. These include indinavir, saquinavir, atazanavir and darunavir. Maraviroc is a chemokine receptor antagonist and causes skin rashes and hepatotoxicity.

96. An HIV positive patient on HAART therapy presented with left flank pain and hematuria. Ultrasound showed multiple stones in left kidney. Which of the following is the cause of this presentation?

    A. Tenofovir

    B. Emtricitabine

    C. Efavirenz

    D. Indinavir

    E. Atazanavir

Ans: Indinavir

Explanation: Nephrolithiasis is caused by indinavir and saquinavir and is not a class effect of all protease inhibitors.

97. Which of the following combinations of antiretroviral has been approved for HIV pre-exposure prophylaxis PrEP?

    A. Lamivudine/zidovudine and dolutegravir

    B. Abacavir- lamivudine

    C. Tenofovir-emtricitabine

    D. Dolutegravir- tenofovir

    E. Emtricitabine- abacavir

Ans: Tenofovir- emtricitabine

Explanation: Tenofovir- emtricitabine is the only combination indicated to prevent HIV acquisition via receptive vaginal intercourse in cisgender women and transgender men. All patients should have a negative HIV-1 test immediately before starting PrEP. Any patient with signs of acute viral infection that may be indicative of acute HIV infection and recent (< 1 month) HIV exposure should be retested for HIV-1 at least 1 month later. If the second test is negative, the patient can be started on PrEP. It is important to test patients on PrEP every 90 days to document continued HIV-negative status. If HIV infection occurs while patients are still taking PrEP, they are at risk of developing drug resistance.

98. A surgeon came for your advice regarding the further management as he has needle prick injury during a surgical procedure on a patient who is HIV positive 1 hour before. What would you recommend?

A. HIV antibody after 1 month and if positive then treat
B. PCR immediately and wait for the results
C. Tenofovir+ emtricitabine after 2 weeks
D. [✓ Tenofovir + emtricitabine within 6 hours]
E. No treatment recommended

Ans: Tenofovir+emtricitabine within 6 hours

Explanation: Postexposure prophylaxis should be started as soon as possible and ideally within 6-8 hours and within 72 hours of exposure to HIV source. PEP is of no use after 72 hours. The recommended treatment for adults is tenofovir + emtricitabine or lamivudine for 4 weeks and for children zidovudine + emtricitabine. There is 0.3% risk of HIV transmission after needle prick injury. HIV antibody testing should be done at baseline, 6, 12 and 24 weeks.

99. A 39 year old female with HIV on ART with poor compliance to treatment presented with history of abdominal pain and diarrhoea for 3 weeks associated with tenasamus. Stool culture was negative and examination is negative for ova and cysts. Colonoscopy was done which showed pancolitis. Histology showed inclusion bodies in multiple cells. What is the most probable diagnosis?

A. Clostridium difficile colitis
B. Salmonella colitis
C. [✓ CMV colitis]
D. Campylobacter colitis
E. Cryptosporidium colitis

Ans: CMV colitis

Explanation: Colitis in HIV patients with typical inclusion bodies on histology is diagnostic of CMV colitis. It can mimics as IBD. Treatment is gancyclovir or valganciclover. CMV colitis occurs mostly when the CD4 count is less than 100.

100. A 39 year old male who is a diagnosed case of HIV on tenofovir+ emtricitabine and ritonavir boosted atazanvir presented with fever and night sweats. CXR showed a cavity in left upper zone and sputum for AFB is +++. What is the most appropriate management for him?

A. Stop HAART
B. Isoniazid+ pyrazinamide
C. Isoniazid+ rifampicin + ethambutol+ Pyrazinamide
D. Isoniazid + rifabutin + Ethambutol + pyrazinamide
E. Change the emtricitabine to lamivudine + Standard ATT

Ans: Isoniazid+ rifabutin + ethambutol + pyrazinamide

Explanation: TB in HIV patients is treated same as without HIV except that if patient is taking protease inhibitors, rifampicin should be changed into rifabutin or change the protease inhibitors to some other ARV drugs. Rifampicin is an inducer of P450 enzymes and decrease the therapeutic level of protease inhibitors.

101. A 45 year old male presented with fever, night sweats and cervical lymphadenopathy is diagnosed as a case of smear positive pulmonary TB. Further testing showed positive HIV with a CD4 count of 60/mm3. He is started on HRZE regimen with tenofovir, emtricitabine and efavirenz with co-trimaxazole. 2 weeks after this patient becomes more unwell with shortness of breath and enlargement of lymph nodes and worsening of fever. All the labs are normal. What is the most likely explanation for worsening of symptoms?

A. Pneumocystis carinii pneumonia
B. Drug resistant TB
C. Immune reconstitution inflammatory syndrome
D. Disseminated tuberculosis U
E. Mycobacterium aviam complex infection

Ans: Immune reconstitution inflammatory syndrome

Explanation: This is a classic history of IRIS which a paradoxical worsening of symptoms due to increasing inflammatory activity with a recovering Immune system. It is most commonly occurs when ART is started along with ATT. IRIS commonly presents with new or worsening of cold abscess of lymph nodes, worsening of radiological features of TB, CNS TB and TB serositis associated with worsening constitutional symptoms, SOB and abdominal pain. It is prevented by starting ART atleast 6-8 weeks after ATT.

102. A pregnant female is HIV positive and is on HAART since the second trimester. Her viral load at 36 weeks gestation is undetectable. Which of the following is true regarding her further management?

A. Elective C- section and continue ART during breastfeeding

B. Vaginal delivery and continue ART during breastfeeding

C. Stop ART and elective C- section

D. [✓ Stop ART, vaginal delivery and formula feed for baby]

E. Continue ART, vaginal delivery and formula feed for baby

Ans: Continue ART, vaginal delivery and formula feed for baby

Explanation:

- All pregnant patients should be offered ART during pregnancy and if ART is started during pregnancy, the best time is 24-28 weeks of gestation. It can be started earlier depending upon clinical situation.
- A C- section is recommended if the viral load is more than 50 copies at 36 weeks.
- If viral load is undetectable or less than 50 copies, vaginal delivery is recommended.
- Zidovudine infusion should be started 4 hours before c-section.
- Zidovudine should be given to neonates if maternal viral load is less than 50 and triple ART should be given if viral load is more than 50. Therapy should be given for 4-6 weeks.
- All HIV positive women should be advised not to breast feed.

36 16 e

103. A 31 year old male who is HIV positive with poor compliance to treatment presented with diarrhea, weight loss and night sweats for 5 months. Examination showed cachexia, generalized lymphadenopathy and hepatosplenomegaly. What is the most likely diagnosis?

A. CMV Colitis

B. Cryptococcoisis

C. [✓ Mycobacterium aviam complex]

D. Histoplasmosis

E. Salmonella bacteremia

Ans: Mycobacterium aviam complex

Explanation: Chronic Diarrhea, night sweats with generalized lymphadenopathy and hepatosplenomegaly in HIV patients is more suggestive of disseminated mycobacterium aviam complex infection. It is commonly present when CD4 count is less than 50. Treatment is rifampicin+ ethambutol+ clarithromycin.

104. A 39 year old HIV positive male presented with headache and blurring of vision and eye pain for 3 weeks. MRI brain showed multiple ring enhancing lesions. Which treatment should be started immediately?

A. Dexamethasone
B. Valganciclover
C. Trimethoprim+ sulfamethoxazole
D. Pyrimethamine+ sulfadiazine
E. Isoniazid+ rifampicin+ pyrazinamide

Ans: Pyrimethamine+ sulfadiazine

Explanation: Multiple ring enhancing lesions in HIV positive patient is toxoplasmosis most probably and the treatment of choice is pyrimethamine+ sulfadiazine.

105. An HIV positive patient presented with headache, fever, neck stiffness and photophobia for 2 days. LP was done which showed 50 cells with predominant lymphocytes and raised proteins and low glucose. India ink preparation is positive. What treatment should be started immediately?

A. Isoniazid+ rifampicin+ pyrazinamide
B. Pyrimethamine+ sulfadiazine
C. Amphotericin + flucytosine
D. Fluconazole + flucytosine
E. Acyclovir + Dexamethasone

Ans: Amphotericin + flucytosine

Explanation: This patient presented with meningitis and the most common cause of meningitis in HIV patients is cryptococcus neoformons. India ink microscopy is also suggestive of the diagnosis. The best treatment for cryptococcus meningitis is Amphotericin B plus flucytosine for 2 weeks followed by fluconazole 400-800mg per day for 8 weeks.

Miscellaneous:

1. A 56 year old male presented with erythematous, scaly and pustular lesions, initially located in the inguinal and perianal regions and on thighs, and very few erythematous lesions on the face for 3 weeks. He also complains of loose stools and excessive hair fall. Which nutritional deficiency can cause such presentation?
   - A. Vitamin A
   - B. Vitamin D
   - C. [✓ Zinc]
   - D. Selenium
   - E. Thiamine

Ans: Zinc

Explanation: Acrodermatitis enteropathica (AE) is a condition caused by zinc deficiency that classically presents with periorificial and acral papulosquamous eruptions accompanied by diarrhea and alopecia. It is associated with anorexia nervosa, alcoholism, bariatric surgery, total parenteral nutrition, nephropathy, inflammatory bowel disease (IBD), blind loop syndrome, and celiac disease. Low selenium state has been associated with depressed mood, anxiety, and confusion.

2. An alcoholic presented with a history of loose stools for 3-months associated with dark and scaly skin eruptions on neck region. His wife also told you that he is now forgetting his way back home frequently and remains confused most of the times. What is the probable cause in this patient?
   - A. [✓ Thiamine deficiency]
   - B. Riboflavin deficiency
   - C. [✓ Niacin deficiency]
   - D. Pyridoxine deficiency
   - E. Cyanocobalamin deficiency

NOA DDD

Ans: Niacin deficiency

Explanation: This alcoholic patient has classic triad of pellagra: diarrhea, dermatitis, and dementia. Alcoholism is currently the most common cause of niacin deficiency. This can be present concomitantly with thiamine deficiency and if an alcoholic presents with confusion and not gets better with thiamine, niacin should also be added. Thiamine deficiency does not cause diarrhea and dermatitis. Riboflavin deficiency causes cheilitis, angular stomatitis, glossitis, seborrheic dermatitis, and anemia. It does not cause diarrhea and dementia. Pyridoxine deficiency causes peripheral neuropathy, anemia and seizures.

3. Which of the following vitamin supplements give false positive results for glucosuria?
   - A. Vitamin A
   - B. [✓ Vitamin C]
   - C. Vitamin D
   - D. Vitamin E
   - E. Vitamin B1

Ans: Vitamin C

Explanation: Vitamin C supplements give both false positive and false negative results for urine glucose and false negative results for fecal occult blood test. Very large doses also causes oxalate kidney stones.

4. Which of the following is the earliest sign of vitamin A deficiency?
    - A. [✓ Xerosis]
    - B. Keratomalacia
    - C. Corneal perforation
    - D. Blindness
    - E. Endophthalmitis

Ans: Xerosis

Explanation: Xerosis and Bitot spots => earliest signs

Night blindness => earliest symptom

Ulceration, perforation, blindness and endophthalmitis=> late manifestations

5. A 26 year old female presented with complaints of yellowish discoloration of her body more marked on palms, soles and back but sclera is white. Her LFTs are normal. What can be the cause?
    - A. Obstructive jaundice
    - B. Hemolytic anemia
    - C. [✓ Carotenemia]
    - D. Gilbert syndrome
    - E. Dubin Johnson syndrome

Ans: Carotenemia

Explanation: Yellowish discoloration on body with normal sclera and normal LFTs suggest the diagnosis of carotenemia which results from excessive intake of beta-carotene. Skin changes are more marked on the palms and soles, while the sclera remain white, clearly distinguishing carotenemia from jaundice.

6. A patient presented with complaints of weight loss, total body alopecia, painful thickened bones and early morning headache for 3 months. Patient was using multiple preparations of vitamin supplements for 2 years. Which of the following can be the cause of these symptoms?
    - A. Hypervitaminosis D
    - B. Hypervitaminosis E
    - C. Hypervitaminosis A
    - D. Hypervitaminosis C
    - E. Hypervitaminosis B6

Ans: Hypervitaminosis A

Explanation: Chronic toxicity of vitamin A can cause the above symptoms. Chronic toxicity usually occurs after ingestion of daily doses of 50000 international units per day for more than 3 months. Early manifestations include dry, scaly skin, hair loss, mouth sores, painful hyperostoses, anorexia, and vomiting. More serious findings include hypercalcemia, increased intracranial pressure with papilledema, headaches, decreased cognition, and hepatomegaly occasionally progressing to cirrhosis.

Hypervitaminosis D presents with hypercalcemia symptoms like confusion, apathy, recurrent vomiting, abdominal pain, polyuria, polydipsia, and dehydration.

Hypervitaminosis E causes only weakness and bleeding in patients taking oral anticoagulants.

Hypervitaminosis C causes gastric irritation, flatulence, diarrhea and oxalate kidney stones.

Vitamin B6 toxicity causes sensory neuropathy which may be irreversible.

7. Which of the following parameters will differentiate between anorexia nervosa and primary Addison disease?
   A. Hyponatremia
   B. Hypokalemia
   C. Weight loss
   D. Hypotension
   E. Amenhorea

↑ ↓

ΔAG

Ans: Hypokalemia

Explanation: Addisonian and anorexic patients exhibit clinical similarities, including nausea, vomiting, weight loss, abdominal pain, cold intolerance, hypothermia, and orthostasis. Other commonalities include prolongation of electrocardiographic PR and QT intervals and generalized slowing on electroencephalogram. Important differences include a brown color to the skin in Addison's disease instead of a yellowish color in anorexia. Addisonian patients also display hypocortisolism, hypoglycemia, and hyperkalemia, in contrast to the hypercortisolism, hyperglycemia, and hypokalemia seen in anorexia.

8. A 42 years old female has a BMI of 28 kg/m2. She would be classified as:
   A. Normal weight
   B. Over-weight
   C. Class I obesity
   D. Class II obesity
   E. Class III obesity

25

Ans: Over-weight

Explanation: National institute of health defines BMI as:

- 18.5-24.9=> Normal
- 25-29.9 => Over-weight
- 30-34.9 => Class I obesity
- 35-39.9 => Class II obesity
- >40 => Class III or morbid obesity

9. Which of the following is not a feature of acute intermittent porphyria?
   A. Recurrent abdominal pain
   B. Peripheral neuropathy
   C. Psychiatric manifestations

D. Photosensitivity
E. Hyponatremia

Ans: Photosensitivity

Explanation: Photosensitivity is not a feature of acute intermittent porphyria. Acute intermittent porphyria only presents as acute neurovisceral disease, whereas, hereditary coproporphyria (HCP), and variegate porphyria (VP) combine acute neurovisceral disease with delayed blistering photosensitivity. Porphyria cutanea tarda (PCT) and congenital erythropoietic porphyria (CEP) manifest only blistering photosensitivity.

Features of acute intermittent porphyria:

- Recurrent abdominal pain mimicking acute abdomen (no fever and no leucocytosis)
- Autonomic and peripheral neuropathy
- Seizures and altered consciousness
- Psychosis
- Hyponatremia
- Hypertension

Note that treatment of AIP is intravenous glucose and hematin and most episodes are triggered by some offending medications.

10. Which of the following feature will differentiate between Marfan syndrome and homocystinuria?
    A. High arched palate
    B. Ectopia lentis
    C. Mental retardation
    D. Pectus excavatum
    E. Arachnodactyly

Ans: Mental retardation

Explanation: Patients with Marfan syndrome and homocystinuria share many of the clinical features. Both of these patients have tall, disproportionate statute, long digits (arachnodactyly), dislocated lens and thoracic deformity. Patients with homocystinuria have below normal intelligence/mentally retarded, have stiff joints and a predisposition to arterial and venous thrombosis.

11. A 55 year old patient presented with complaints of pain in left shoulder for 3 months. Examination showed limited range of movements both on active and passive movements. There is no obvious deformity. What can be the diagnosis?
    A. Impingement syndrome
    B. Rotator cuff tear
    C. Adhesive capsulitis
    D. Shoulder dislocation
    E. Subacromial bursitis

Ans: Adhesive capsulitis

Explanation: In adhesive capsulitis or frozen shoulder, patients present with a painful shoulder that has a limited range of motion with both active and passive movements. A useful clinical sign is limitation of movement of external rotation with elbow by the side of the trunk. Impingement syndrome and rotator cuff tear do not cause limitation on passive movements. In shoulder dislocation, there will be obvious deformity.

12. A farmer from Punjab village brought to the emergency in summer season who was found unconscious. He was alright in the morning when he left for work. Examination showed temperature of 106 F° with a GCS of 5/15 with no other clinical signs. What is your most probable diagnosis?
    A. Cerebral malaria
    B. Meningoencephalitis
    C. [✓ Heat stroke]
    D. Brainstem stroke
    E. Organophosphate poisoning

Ans: Heat stroke

Explanation: All of the above can cause fever with altered sensorium but history of going all right in morning in a summer season for work with very high temperature suggest heat stroke as the most probable diagnosis here.

Heat stroke is a severe form of heat-related illness resulting in cerebral dysfunction with core body temperature over 40 C°. It may present in one of two forms: classic and exertional. Classic heat stroke occurs in patients with impaired thermoregulatory mechanisms or in extreme environmental conditions. Exertional heat stroke occurs in healthy persons undergoing exertion in a hot or humid environment. Exertional heat stroke may present with sudden collapse and loss of consciousness followed by irrational behaviour. Sweating may not be present.

13. Which of the following is the best cooling method for heat stroke?
    A. Ice packs in axilla
    B. [✓ Immersion in cold/ice water]
    C. Gastric lavage
    D. Paracetamol infusion
    E. Cooling blankets

Ans: Immersion in cold/ice water

Explanation: Ice-water immersion has been shown to be highly effective in exertional heat stroke, with a zero fatality rate in younger, fit patients. In older patients with nonexertional heat stroke, studies have more often promoted evaporative plus convective cooling. Evaporative plus convective cooling may be augmented by crushed ice or ice packs applied diffusely to the body. Chilled intravenous fluids may also supplement primary cooling. Based on current evidence, ice packs applied strategically to the neck, axilla and groin; cooling blankets; and intravascular or external cooling devices are not recommended as primary cooling methods in heat stroke. Antipyretics have no effect on environmentally induced hyperthermia and are contraindicated.

14. Agranulocytosis is a side effect of which anti-psychotic?

A. Olanzapine
B. Quetiapine
C. Clozapine
D. Risperidone
E. Asenapine

Ans: Clozapine

Explanation: Clozapine is associated with a 1.6% risk of agranulocytosis and it's use must be strictly monitored with weekly blood counts during the 1^{st} 6 months of treatment, and fortnightly after that. Almost all atypical antipsychotic cause new onset DM, hyperlipidemia and weight gain.

15. Type 1 hyperlipidemia is associated with:
    A. LDL receptor deficiency
    B. Defect in Apo E synthesis
    C. Decrease lipoprotein lipase
    D. Arcus senilis
    E. Increase VLDL production

Ans: Decreased lipoprotein lipase

Explanation: Familial hyperlipidemias are classified according to the Fredrickson classification, which is based on the pattern of lipoproteins on electrophoresis or ultracentrifugation.

Hyperlipo-proteinemia	Synonyms	Defect	Increased lipoprotein	Main symptoms	Treatment	Serum appearan
Type I	Familial hyperchylomicronemia	Decreased lipoprotein lipase	Chylomicrons	Acute pancreatitis, lipemia retinalis, eruptive skin xanthomas, hepatosplenomegaly	Diet control	Creamy t layer
Type IIa	Familial hypercholesterolemia	LDL receptor deficiency	LDL	Xanthelasma, arcus senilis, tendon xanthomas	Bile acid sequestrants, statins, niacin	Clear
Type IIb	Familial combined hyperlipidemia	Decreased LDL receptor and increased ApoB	LDL and VLDL		Statins, niacin, fibrate	Turbid
Type III	Broad beta disease or dysbetalipoproteinemia	Defect in Apo E 2 synthesis	IDL	Tuberoeruptive xanthomas and palmar xanthomas	Fibrate, statins	Turbid
Type IV	Familial hypertriglyceridemia	Increased VLDL production	VLDL	Can cause pancreatitis at high triglyceride levels	Fibrate, niacin, statins	Turbid

		and decreased elimination				
Type V	Mixed hyperlipoproteinemia	Increased VLDL production and decreased LPL	VLDL and chylomicrons		Niacin, fibrate	Creamy t layer and turbid bottom

(P)

- Type IV is most common followed by type IIb, both occurred in 1 in 100 of population.

16. A 32 year old male presented with complaints of erectile dysfunction and difficult to achieve orgasms for 2 months. He is using paroxetine for depression. What should be done?
    - A. [✓ Add mirtazapine]
    - B. Add bupropion
    - C. Cognitive behavioral therapy
    - D. Add venlafaxine
    - E. Change paroxetine to escitalopram

Ans: Add bupropion

Explanation: Sexual side effects of erectile dysfunction, retrograde ejaculation, and dysorgasmia are very common with SSRIs. Sildenafil can be used for erectile dysfunction. Adjunctive bupropion 75-150 mg daily is used for sexual arousal in patients taking SSRIs.

17. A patient from village background took some antibiotics from a quack for suspected typhoid presented with gum bleeding. CBC showed pancytopenia with absent reticulocyte count. Which antibiotic he may have taken?
    - A. Ciprofloxacin
    - B. Co-trimaxazole
    - C. [✓ Chloramphenicol]
    - D. Azithromycin
    - E. Cefixime

Ans: Chloramphenicol

Explanation: Chloramphenicol is the leading single cause of drug-induced aplastic anemia. Bone marrow toxicity is both dose dependent and idiosyncratic. Due to this side effect, chloramphenicol is not used commonly now a days. Co-trimaxazole commonly causes folate deficiency anemia and hemolysis in G6PD deficient patients.

18. A 28 years old IV drug abuser presented with complaints of right shoulder pain with fever on and off. He also complains of intractable hiccups. Examination of shoulder joint is normal with full range of motion at right shoulder. What should be the next best management step for him?
    - A. Ibuprofen and discharge
    - B. X-ray right shoulder
    - C. CT abdomen and chest
    - D. Joint aspiration from shoulder
    - E. Echocardiography

Ans: CT abdomen and chest

Explanation: History of fever in an IV drug abuser has broad differentials. Here, this patient has right shoulder pain with normal examination and normal movements ruled out local pathology of joint and suggest that this pain is radiating. Patient is also complaining of hiccups which suggests that there is some pathology which is causing irritation to diaphragm. Irritation of diaphragm also causes referred pain to right shoulder. The next best step should be a CT abdomen and chest to see the pathology which in this case might be a subphrenic abscess. CT is a good modality for the detection of a subphrenic abscess and estimating its volume. It allows the evaluation of the condition of adjacent organs and a possible reason for the abscess (e.g. perforation) and its complications. The clinical presentation varies with the anatomic location of the subphrenic abscess. However, fever, upper quadrant pain, costal margin tenderness, shoulder pain, abdominal tenderness, and dyspnea may be present. It may also present as a hiccup, cough or unexplained pulmonary manifestations like pneumonia, pleural effusion, and basal atelectasis. Pyrexia of unknown origin is not uncommon. The majority of the patients who are not treated immediately will progress to have a systemic inflammatory response syndrome and develop tachycardia, hypotension, and low urine output, eventually leading to multiorgan failure and death. Management of subphrenic abscess includes antibiotics, drainage of the abscess, and general care of the patient.

It is recommended to remember the well-known aphorism of "pus somewhere, pus nowhere else, and pus under the diaphragm".

19. Which of the following is the most common primary cancer causing brain metastasis?
    - A. Lung cancer ✓
    - B. Breast cancer
    - C. Colorectal cancer
    - D. Malignant melanoma
    - E. Kidney cancer

Ans: Lung cancer

Explanation: The 5-year cumulative incidence of brain metastases is 16%, 10%, 7%, 5%, and 1% for patients with lung cancer, renal cell cancer, melanoma, breast cancer, and colorectal cancer, respectively. The lung followed by breast are the commonest primary sites. Brain metastases are blood-borne with the distribution of brain metastases reflecting blood flow—80% of lesions are found in the cerebrum, 15% in the cerebellum, and 5% in the brainstem.

20. A 65 years old smoker presented with complaints of tingling sensation in right arm associated with weakness of right arm for 3 months. Examination showed wasting of small muscles of right

hand. There is also constricted right pupil with loss of sweating on right side of face and partial ptosis on right side. What can be the cause of these presentation in this patient?

A. Brainstem stroke
B. Paraneoplastic syndrome
C. [✓ Pancoast tumor]
D. Motor neuron disease
E. Thoracic outlet obstruction

Ans: Pancoast tumor

Explanation: History of smoking, muscle wasting with Horner syndrome suggest the diagnosis of pancoast tumor in this patient. The next best step should be a chest x-ray to check for the lung mass.

Pancoast tumour, also known as superior sulcus tumour, refers to a relatively uncommon situation where a primary lung cancer arises in the lung apex and invades the surrounding soft tissues. Classically a Pancoast syndrome results, but in actuality this is only seen in one quarter of cases. Pancoast syndrome results from involvement of the brachial plexus and sympathetic chain by a Pancoast tumour. The syndrome consists of: Shoulder pain, C8-T2 radicular pain and Horner syndrome.

21. Which of the following features is present in a patient with cocaine withdrawal?

A. Insomnia
B. [✓ Tactile hallucinations]
C. Hypertension
D. Hyperpyrexia
E. Decreased appetite

Ans: Tactile hallucinations

Explanation: Cocaine is a stimulant drug and it's withdrawal generally does not cause any life-threatening condition. Manifestations of withdrawal include; dysphoria, excessive sleep, hunger, tactile hallucinations and severe psychomotor retardation, whereas vital functions are well preserved.

22. Which of the following can be used to diagnose benign paroxysmal positional vertigo?

A. History and examination
B. Vagal maneuver
C. [✓ dix-Hallpike maneuver]
D. Epley maneuver
E. Caloric stimulation test

Ans: dix-Hallpike maneuver

Explanation: Benign paroxysmal positional vertigo is a form of positional vertigo which is defined as:

- Positional vertigo is defined as a spinning sensation produced by changes in head position relative to gravity.
- Benign paroxysmal positional vertigo is defined as a disorder of the inner ear characterized by repeated episodes of positional vertigo.

BPPV is most commonly clinically encountered as one of two variants: BPPV of the posterior semicircular canal (posterior canal BPPV) or BPPV of the lateral semicircular canal (also known as horizontal canal BPPV). Posterior canal BPPV is more common than horizontal canal BPPV.

- Clinicians should diagnose posterior semicircular canal BPPV when vertigo associated with nystagmus is provoked by the Dix-Hallpike maneuver, performed by bringing the patient from an upright to supine position with the head turned 45 degrees to one side and neck extended 20 degrees. The Dix-Hallpike maneuver is considered the gold standard test for the diagnosis of posterior canal BPPV.
- If the patient has a history compatible with BPPV and the Dix-Hallpike test is negative, the clinician should perform a supine roll test to assess for lateral semicircular canal BPPV.
- It is not recommended to obtain radiographic imaging, vestibular testing, or either in a patient diagnosed with BPPV unless the diagnosis is uncertain or there are symptoms or signs unrelated to BPPV that warrant testing.
- Epley maneuver is used initially for the treatment of BPPV.

23. A 45 year old alcoholic admitted in emergency with a diagnosis of acute pancreatitis. Three days after admission, he complains of sudden onset of visual loss in right eye. Fundoscopy shows multiple white patches on retina. What can be the cause in this patient?
    A. Post-febrile retinitis
    B. Optic neuritis
    C. Purtscher retinopathy
    D. Vasculitic retinopathy
    E. Anterior ischemic optic neuropathy

Ans: Purtscher retinopathy

Explanation: Purtscher retinopathy (traumatic retinal angiopathy) is an occlusive microvasculopathy characterized by multiple retinal white areas around the optic nerve head and fovea with paravascular clearing which may be associated with intraretinal hemorrhages. Purtscher flecken, cotton wool spots, and minimal intraretinal hemorrhage are typical features. Causes of typical Purtscher retinopathy are associated with trauma/surgery. These include head trauma, fracture of long bones and chest compression. Causes of Purtscher-like retinopathy include:

- Acute pancreatitis
- Chronic pancreatitis
- Embolism (fat, air, amniotic fluid)
- Chronic renal failure
- Severe acute retinal failure associated with squamous cell carcinoma of the cervix
- Acute renal allograft rejection
- Nephrotic syndrome
- Connective tissue disorder (systemic lupus erythematosus, scleroderma, dermatomyositis)
- Thrombotic thrombocytopenic purpura (TTP)
- Cryglobulinemia in hepatitis C

- Hemolytic uremic syndrome (HUS), atypical hemolytic uremic syndrome
- Hemophagocytic lymphohistiocytosis
- Preeclampsia
- HELLP syndrome (hemolysis, elevated liver enzymes, low platelets).

24. A patient presented with shock in emergency. A decision is made to insert Swan-Ganz catheter to determine the cause of shock. Which of the following is not measured directly by this catheter?
    A. Central venous pressure
    B. Right atrial pressure
    C. Cardiac output
    D. [✓ Left ventricular EDP]
    E. Pulmonary artery pressure

Ans: Left ventricular EDP

Explanation: Swan-Ganz catheter is commonly used for:

- Continuous cardiac output monitoring
- Central temperature monitoring
- Measurement of pulmonary artery pressure (can also measure RA and RV pressures during insertion)
- Measurement of mixed venous saturations
- Estimation of diastolic filling of left heart (normal PCWP 2-12mmHg).

Swan-Ganz catheter can measure CVP, right atrial pressure, right ventricular pressure, cardiac output, and pulmonary artery pressure directly and left atrial pressure is calculated indirectly by pulmonary capillary wedge pressure. In most patients, PCWP and LAP estimates LVEDP, thus is an indicator of LVEDV (preload of the left ventricle).

25. A 56 years old female with a history of breast cancer presented with a sudden onset of bilateral lower limb weakness with low back pain. What should be your next best step in this patient?
    A. X-ray lumbosacral spine
    B. CT lumbosacral spine
    C. [✓ MRI of whole spine]
    D. Bone scan
    E. PET scan

Ans: MRI of whole spine

Explanation: History of cancer with sudden onset of low back pain and neurological deficit suggests the diagnosis of spinal cord compression. When there are neurological deficits in a cancer patient, urgent whole spine MRI should be obtained to define all areas of tumor involvement for treatment planning purpose. Bone scans and bone radiography are neither sensitive nor specific for the evaluation of back pain and neurological deficit in a cancer patient. PET scan can be used, when primary tumor is not localized.

(If patient with known cancer presents with sudden neurological signs, the best initial management is 10-100 mg dexamethasone IV followed by MRI spine).

26. Which of the following is the most common paraneoplastic endocrine syndrome associated with malignancy?
    - A. SIADH
    - B. Diabetes insipidus
    - C. Hypercalcemia
    - D. Cushing syndrome
    - E. Addison disease

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Ans: Hypercalcemia

Explanation: Hypercalcemia is the most common paraneoplastic endocrine system associated with cancer. It affects 20-30% of cancer patients at some point during their illness. The most common cancers associated with hypercalcemia are: multiple myeloma, breast and non small cell lung carcinoma. Hypercalcemia is caused by one of three mechanisms:

- Systemic effects of PTHrP released by tumors
- Direct osteolysis of bones by tumor
- Vitamin D associated osteo-absorption.
-

PET